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ABSTRACT

This paper is the second of a series of four reports that document the achievement monitoring component of a three-year study on the acquisition of addition-subtraction problem-solving skills by young children. A set of performance objectives contained in or ancillary to 10 instructional units on sentence-writing for verbal problems and algorithms specified test content. Tests measuring group progress toward these objectives were administered after each unit. Data for the tests given after the three units covered in the fall semester of grade 2 are presented in this paper. The scores for each objective, developed using matrix sampling procedures, indicated satisfactory progress on all but three objectives for which mastery had been expected. These objectives involved sentence-writing for the numbers 0-20. Performance on the other objectives was generally satisfactory and in fact froquently surpassed expectations relative to instruction, particularly for objectives associated with the numbers 0-99. Administrator's manuals and student tests forms R, S, & T; item statistics; and performance by objective are included in the appendices. (Author/JAZ)



Working Paper No. 319

DATA COLLECTION PROCEDURES AND DESCRIPTIVE STATISTICS FOR THE GRADE TWO (FALL) ACHIEVEMENT MONITORING TESTS (S-4, S-5, AND S-6), COORDINATED STUDY NO. 1

by

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Report from the Project on Studies in Mathematics

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Abstract

This paper is the second of a series of four reports that document the achievement monitoring component of a three-year study on the acquisition of addition-subtraction problem-solving skills by young children. A set of performance objectives contained in or ancillary to ten instructional units on sentence-writing for verbal problems and algorithms specified test content. Tests measuring group progress toward these objectives were administered after each unit. Data for the tests given after the three units covered in the fall semester of grade 2 are presented in this paper. The scores for each objective, developed using matrix sampling procedures, indicated satisfactory progress on all but three objectives for which mastery had been expected. These objectives involved sentence-writing for the numbers 0-20. Performance on the other objectives was generally satisfactory and in fact frequently surpassed expectations relative to instruction, particularly for objectives associated with the numbers 0-99.



Introduction

The Mathematics Work Group of the Wisconsin Center for Education Research is presently conducting a program of research focused on children's acquisition of concepts and skills related to addition and subtraction of whole numbers. A major aim of mathematical instruction is to enable students to acquire concepts and skills requisite for solving problems of many types. A goal of our current research is to understand how pedagogical and psychological factors are related to their acquisition.

The interrelationship of pupil performance on selected arithmetic skills, pupil cognitive processes, instructional materials, and teachers' classroom behaviors is depicted in Figure 1. Using this framework, we are proceeding to:

- 1. identify important addition and subtraction skills;
- review past empirical data or collect new data on these skills;
- 3. re-examine these mathematical skills and hypothesize how they are related to underlying cognitive skills;
- 4. examine the instructional materials designed to teach these skills; and
- 5. conduct a series of empirical studies on the appropriateness of particular teacher classroom behaviors, the appropriateness of instructional materials, and the relationship of specific cognitive skills to mathematical skills.



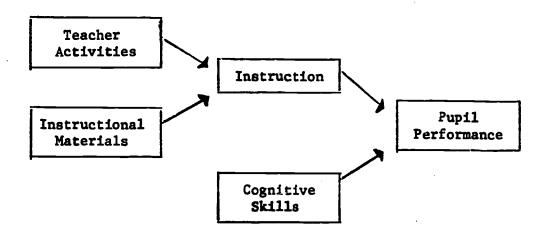


Figure 1. Factors influencing pupil performance.



The work of the Mathematics Work Group is built around the conceptual framework exemplified in Figure 1. The empirical and theoretical investigations generally involve two or more of the factors depicted and have been organized into four major categories. These are a conceptual paper series, a set of short empirical studies, a major longitudinal study, and an invitational conference of scholars.

This paper is one of a series of summary reports from the longit addinal study. Approximately 180 students in three schools were identified as subjects for the study. One school with about 60 students chose not to continue into the second year of the study. Thus, about 120 children were followed for three school years. Pupil performance was measured in several ways:

- 1. Individual interviews. At several times during each school year, individual children were administered a set of problem tasks dealing with addition and subtraction. The interviewer attempted to ascertain the children's solution strategy, correctness of answer, type of errors made, and modeling procedures.
- 2. Group-administered paper-and-pencil tests. There were two categories of tests:
 - a. Achievement monitoring. These tests measured pupil progress toward a set of performance objectives contained in the instructional materials. By means of matrix sampling procedures, estimates were made of group performance. Achievement monitoring tests were given



shortly after the completion of the instructional units related to arithmetic objectives.

b. Topic inventories. These were very short tests that
measured pupil progress toward mastery of the objectives
of a specific instructional unit or topic. Every subject
took the same test, resulting in a measure of individual
performance.

Each topic inventory was given only once, providing a measure of performance on a few objectives at a single point in time; in contrast, there were repeated administrations of the same achievement monitoring test, in order to examine change in performance over time on a broad set of objectives.

Instruction and classroom environment were assessed by direct classroom observation of teacher actions, pupil behaviors, and instructional
materials. A trained observer was present each day the instructional
units, or topics, dealing with arithmetic objectives were used. Organizational and grouping measures were noted, along with interactions between
teacher and pupils and among pupils. Measures of pupil engaged time were
estimated by observing six target students.

The purpose of this paper is to report the administration of and results for the achievement monitoring tests given to grade 2 students during the fall semester of the second year of the study in the period October 1979 through February 1980. The tests were administered following instruction in the three sentence-writing topics (S-4, S-5, and S-6). The paper has four major sections: background information on the subjects and



instructional materials, description of the three-year achievement monitoring plan and the tests, report of the data collection procedures, and discussion of the results. Samples of the tests, administrator's manuals, and complete item and test statistics appear in the appendices.

Background Information

Subjects

The subjects were 120 second-grade students in six classes from two elementary schools in predominantly middle class areas.

Curriculum Materials and Instructional Objectives

Each of the schools used as their mathematics curriculum the Developing Mathematical Processes (DMP) program (Romberg, Harvey, Moser, &
Montgomery, 1974). Ten new instructional topics on addition-subtraction,
to be integrated into the regular DMP sequence of topics, had been developed
for the three-year study. The topics covered during the fall semester of
grade 2 were S-4, S-5, and S-6 which were sentence-writing topics; three
sentence-writing topics (S-1, S-2, and S-3) which included the same objectives had been completed in grade 1. For the spring semester of grade 2
and first months of grade 3, four algorithm topics (A-1 through A-4) were
taught. Instruction in other DMP topics was carried out as usual in all
three grades, except for topics replaced by the ten special topics.

The ultimate goal of the ten topics was that children develop efficient problem-solving behavior in addition and subtraction problem situations. The specific skills believed to result in this behavior are the ability to symbolize verbal problems in the form of written addition or



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subtraction sentences and the ability to retrieve addition and subtraction "facts" and/or use addition-subtraction algorithms.

The content of the three topics taught in the fall semester of grade 2 is summarized here:

Topic S-4. The simple joining, separating, and part-part-whole situations already introduced were varied by increasing the complexity of wording and context and by varying the position of the unknown part for joining and separating such that the situation was not directly trans-latable into a canonical sentence, i.e., "missing addends or subtrahends" were presented. Open sentences 0-20 were practiced, with stress on the 11-14 facts, and the noncanonical form was introduced.

Topic S-5. Comparison situations were focused on, including the use of the part-part-whole chart in analyzing them. Also, separating situations in which the whole is unknown were covered; that is, "missing minuends." Open sentences 0-20 were reviewed, with emphasis on the canonical form.

Topic S-6. Mastery of all three objectives was expected at the end of S-6, in which all the sentence-writing situations and the open sentences were reviewed.

The skills covered in these three topics were expressed formally by the following instructional objectives common to all six sentence-writing topics:

1. Given an open problem situation involving the numbers 0-20 that is solvable by using either addition or subtraction, writes a sentence that represents the situation.



- 2. Given an open sentence of the form $a + b = \Box$ or $\frac{a}{b}$ involving the numbers 0-20, 1 solves it.
- 3. Given an open sentence of the form $a b = \square$ or $\frac{a}{-b}$ involving the numbers 0-20, solves it.

Of the many objectives included in the regular DMP topics taught in grade 2, only those which developed the notions of numerousness, ordering, and place value for the numbers 0-99 were essential in terms of the present study, since this content was prerequisite to the objectives of the algorithm topics. These prerequisite objectives were:

- Given a set of 0-99 objects (or the spoken number), represents the numerousness of that set by writing the appropriate number.
- 2. Given a number 0-99, represents it physically or pictorially.
- Given a set of numbers 0-99, orders them.
- Given a number 0-99, written in compact/expanded notation,
 writes it in expanded/compact notation.

Instruction

Instruction in the sentence-writing topics S-4, S-5, and S-6 occurred in the period from October 1979 to February 1980 for all classes except the lowest achievement group in school 1 which completed S-6 in mid-March 1980. The topic pertaining to numerousness, ordering, and place value for the numbers 0-99 was completed just after S-6. The teachers cooperated with the request that the three S topics be taught according to the specifications in the instructional materials.

 $^{^{1}}$ The basic facts 0-10 were emphasized in S-1 through S-3.



The mathematics classes were homogeneously grouped at school 1 into four levels. The two classes in school 3 were heterogeneously grouped.

(School 2 did not participate in the study after the first year.)

The time allowed for mathematics was:

school 1, four classes

35-minute periods daily

school 3, two classes

45-minute periods daily

It had been suggested that each topic be covered in about three weeks. The actual range of time spent by the six classes appears in Table 1 and indicates that for S-4 and S-5 most classes spent more than the recommended time. This occurred primarily because teachers expected students to master the material at S-4 and/or S-5 and were uncomfortable about moving on, even though mastery was not required by the program specifications until S-6. Since there was much variability among classes in the amount of time per topic, interesting relationships to achievement might be demonstrated. However, no attempt to do so will be made in this report which is concerned with performance of the total population.

Achievement Monitoring Plan and Tests

Overview of the Three-Year Plan

Figure 2 presents an overview of the achievement monitoring plan for the three years of the study. All objectives on which performance was assessed are listed in abbreviated form with an indication of the points in time when instruction occurred, when mastery was expected, and when achievement was monitored. The schedule called for 11 test times: the baseline test and a test after each instructional topic.



Table 1

Time Spent on Instruction in Sentence-writing Topics

Topic	Minimum	Average	Maximum
S-4	675 min., 19 days ^a	842 min., 26.3 days	1063 min., 33 days
S-5	425 min., 15 days	609 min., 18.8 days	905 min., 27 days
S-6	349 min., 12 days	462 min., 14.5 days	666 min., 20 days

^aMinutes and days do not necessarily represent the same class.

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Following the general rule that objectives should be assessed both prior to and following instruction, yet avoiding test situations which would be overly frustrating or extremely easy for the students, four overlapping test periods were identified and objectives added to or dropped from the achievement monitoring schedule accordingly. The four test periods covered the middle of grade 1 to the end of grade 1 (baseline through S-3), the middle of grade 1 to the middle to grade 2 (baseline through S-6), the beginning of grade 2 to the middle of grade 3 (S-4 through A-4), and the middle to grade 1 to the middle of grade 3 (S-1 through A-4). Achievement was assessed a minimum of four times and a maximum of 11 times per objective.

In order to limit the time any student spent in a testing situation and yet to gather a maximum amount of information about progress toward each objective, a matrix sampling plan based on earlier work in this area was followed (Romberg & Braswell, 1973). All students in each class were assigned randomly to one of three test groups. Each test group was then assigned one of three test forms for each administration period. Each objective was represented by items on at least two and usually all three of the test forms. A description of the tests is given in the following section.

The objectives included in the achievement monitoring program were classified as (1) prerequisite instructional objectives, which were those considered necessary for achievement of the objectives of the S and A topics, (2) instructional objectives for the S and A topics, and (3) non-instructional objectives. The noninstructional objectives pertained to



skills which were not formally taught in the regular DMP program or the S and A topics. However, since there was potentially a relationship between growth in these skills and progress on the formal instructional objectives, they were included in the test program. The noninstructional skills were:

- 1. problem-solving 0-20 and 0-99
- 2. counting on and counting back
- 3. recall of basic addition-subtraction facts under a speeded test condition
- 4. use of addition-subtraction algorithms under a timed test condition

The problem-solving objectives were created for achievement monitoring because the instructional objectives stated for the S and A topics specified sentence-writing skills and open sentence/algorithmic skills as discrete objectives but did not actually express as objectives the ability to integrate these skills in problem-solving situations. Assessment of problem-solving per se was also of interest because these data paralleled that gathered in the individual interview component of the study.

The objectives were also organized in terms of general mathematical content areas such as numerousness, ordering, and open sentences. (See Figure 2.) Each of these areas represented what may be thought of as a composite objective. For example, in the area of numerousness, there was an individual objective related to writing 0-99 and another objective for representing 0-99; when these two objectives were treated as one, they



formed a composite objective called numerousness. The composite objectives will be used in later analyses in which aggregate data are desirable to reduce the number of variables. In the present paper, the discussion primarily concerns individual objectives.

The scntence-writing objectives were stated as composite objectives in the instructional materials; that is, there was no explicit breakdown into individual objectives for each problem type, such as joining, separating and comparison. For two reasons, the sentence-writing objectives were broken down into several discrete objectives, each reflecting a different problem situation: first, the various problem situations were introduced at different points in the sequence of sentence-writing topics; second, and more importantly, the achievement monitoring data will eventually be integrated with data from the interview component of the study which was gathered and analyzed in terms of problem type.

Objectives Assessed in Grade 2 (Fall)

The prerequisite instructional objectives and the instructional objectives for the S topics included in the test program for grade 2 (fall) were stated in full in the first section. Since two of the four algorithm topics would be covered during the spring semester of grade 2, the three objectives for those topics were also assessed during the fall semester of grade 2 for baseline purposes. These objectives, which are the same for the four algorithm topics, are:



- 1. Given an open addition or subtraction situation involving the numbers 0-.., writes a sentence that represents the situation.
- 2. Given two numbers whose sum is 0-99, computes their sum.
- 3. Given two numbers 0-99, computes their difference.

The noninstructional skills for problem-solving, counting, and recall of basic facts were assessed throughout this phase of the achievement monitoring. The use of addition and subtraction algorithms under a free-response timed condition was assessed only at S-6, because earlier testing of these skills would have unnecessarily frustrated the children. The 38 individual objectives assessed in grade 2 (fall) are marked with an asterisk in Figure 2 and are summarized in Table 2.²

Mastery expectations were established for the prerequisite and S and A instructional objectives. The numerousness, ordering, and place value objectives for the numbers 0-99 were to be mastered just before the first A topic; that is, mastery was not expected until the A-1 test time. Mastery of the sentence-writing objectives for numbers 0-20 was expected after the completion of S-6. Mastery of open sentences for sums or minuends to 10 had been expected after S-3 while mastery of the remaining facts-open sentences for sums or minuends to 20—was anticipated after S-6. Since instruction on all of the instructional objectives associated with the algorithms and with sentence-writing for numbers 0-99 would occur in the spring semester of grade 2 and fall semester of grade 3 during the A-1 to A-4 topics, mastery was not expected until A-4.

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After the original specification of noninstructional objectives, it was decided to add 3-digit numbers (objectives) to the algorithm timed subtests and also to subdivide the timed test objectives according to criteria such as whether or not regrouping was required; therefore, the final number of objectives was > 38.

Table 2
Objectives Assessed in Grade 2 (Fall)

Numerousness writes 0-99 represents 0-99

Ordering, Place Value ordering 0-99 notation 0-99

Open Sentences add 0-20 subt 0-20

Sentence-writing 0-20
add-simple joining
subt-simple separating
subt-part part whole-addend
add-part part whole
subt-comparison
subt-join-addend

Sentence-writing 0-99
add-simple joining
subt-simple separating
subt-part part whole-addend
add-part part whole
subt-comparison
subt-join-addend

Problem-solving 0-20
add-simple joining
subt-simple separating
subt-part part whole-addend
add-part part whole
subt-comparison
subt-join-addend

Problem-solving 0-99
add-simple joining
subt-simple separating
subt-part part whole-addend
add-part part whole
subt-comparison
subt-join-addend

Algorithms add 0-99 subt 0-99

Counting on 9-31 back 9-31

Basic Facts Recall--Speeded Test add 0-20 subt 0-20

Algorithms--Timed Test¹
add 0-99
subt 0-99

¹ Assessed only at S-6.

There were no specific predictions for time of mastery for the non-instructional objectives; however, it was anticipated that performance on the recall and problem-solving skills for numbers 0-20 would be related to growth on the open sentence and sentence-writing 0-20 objectives and that there would be improvement in counting skills due to informal work in this area both at home and at school. Similarly, it was presumed that problem-solving skills for numbers 0-99 and algorithmic performance under timed conditions would be related to status on the regular objectives of the A topics.

Description of the Tests

Three forms (R, S, T) of a 35-minute paper-and-pencil test were developed for the fall semester of grade 2; each form had four subtests.

Two subtests assessed recall of addition and subtraction facts under speeded test conditions; the major subtest contained 19 multiple-choice items covering all other objectives to be assessed. The fourth subtest measured performance on the sentence-writing 0-20 and 0-99 objectives in a free-response context. (These objectives were also included in the multiple-choice test.) Two additional subtests were created for S-6 only for the baseline testing of addition and subtraction algorithm proficiency under timed conditions. Copies of the tests and administrator's manuals are in Appendix A; a discussion of the test development for all three years of the study appears elsewhere (Buchanan & Romberg, 1982b).

Multiple-choice subtest. An outline of the content of each form of the multiple-choice subtest appears in Table 3. Each objective in the areas



Table 3
Outline of Multiple-choice Subtest Items

Item ID ⁴	Form R	Form S	Form T
10	Numerousness writes 0-99	Numerousness writes 0-99	Numerousness writes 0-99
2D	Numerousness represents 0-99	Numerousness represents 0-99	Numerousness represents 0-99
3E	Open Sentences subt 0-10	Open Sentences add 0-10	Open Sentences
4 F	Open Sentences add 11-18	Open Sentences subt 11-18	Open Sentences
5 G	Problem-solving 0-20 (A) subt-simple separating 11-15	Problem-solving 0-20 (A) subt-comparison 11-15	Problem-solving 0-20 (A) add-part part whole 11-15
6H	Problem-solving 0-99 (A) subt-comparison 0-99	Problem-solving 0-99 (A) add-part part whole 0-99	Problem-solving 0-99 (A) subt-simple separating 0-99
71	Ordering, Place Value ordering 0-99	Ordering, Place Value ordering 0-99	Ordering, Place Value ordering 0-99
8 J	Ordering, Place Value notation 0-99	Ordering, Place Value notation 0-99	Ordering, Place Value
9K	Sentence-writing 0-20 (A) add-part part whole 11-15	Sentence-writing 0-20 (A) subt-simple separating 11-15	Sentence-writing 0-20 (A) subt-comparison 11-15
10L	Sentence-writing 0-99 (A) subt-simple separating 0-99	Sentence-writing 0-99 (A) subt-comparison 0-99	Sentence-writing 0-99 (A) add-part part whole 0-99
1111	Sentence-writing 0-20 (B) subt-join-addend 11-15	Sentence-writing 0-20 (B) subt-part part whole-addend 11-15	Sentence-writing 0-20 (B) add-simple joining 11-15
26		**_**	

12N	Sentence-writing 0-99 (B) subt-part part whole-addend 0-99	Sentence-writing 0-99 (B) add-simple joining 0-99	Sentence-writing 0-99 (B) ∪ubt-join-addend 0-99
130	Problem-solving 0-20 (B) subt-join-addend 11-15	Problem-solving 0-20 (B) subt-part part whole-addend 11-15	Problem-solving 0-20 (B) add-simple joining 11-15
14P	Problem-solving 0-99 (B) add-simple joining 0-99	Problem-solving 0-99 (B) subt-join-addend 0-99	Problem-solving 0-99 (B) subt-part part whole-addend 0-99
15Q	Algorithms add 0-99	Algorithms add 0-99	Algorithms add 0-99
16R .	Algorithms subt 0-99	Algorithms subt 0-99	Algorithms subt 0-99
178	Counting on 9-18	Counting on 9-18	Counting on 9-18
18T	Counting back 9-18	Counting back 9-18	Counting back 18-31
190	Counting back 18-31	Counting on 18-31	Counting on 9-18

The numeric ID refers to the items as they are labeled in the computer printout reproduced in Appendix B. The alpha ID refers to the actual tests; items A and B are samples (see Appendix A).

of numerousness, ordering/place value, open sentences, and algorithms (not timed) was represented by one multiple-choice item on every test form; i.e., three items altogether per objective. Similarly, for counting on and counting back for numbers to 18, there was one item per form; however, an additional counting item for numbers to 31 was added to each form because information on these numbers was of potential interest in the development of interview problem situations using larger numbers.

Each of the 12 individual objectives for sentence-writing 0-20 and 0-99 was represented by a multiple-choice item in one of three forms; that is, one item per objective. Each verbal problem type (e.g., joining) was therefore represented by two items, one for numbers 11-15 and one for 0-99. The two items were on different forms.

The sentence-writing objectives (or items) were further classified into two groups: Sets A and B. This was an arbitrary division created because half (Set A) of the items were designed to reflect the interview verbal problems precisely in syntax, number order, number domain, etc., while the remainder (Set B) allowed variations in these characteristics in keeping with the instructional program which presented more variations of each problem type than it was possible to cover in the individual interview.

Since there was no way in a multiple-choice format to have students actually write a sentence, the items required listening to a verbal problem read aloud and then choosing the sentence which correctly represented the

For both the sentence-writing and problem-solving objectives, Set A test verbal problems differed from interview verbal problems in that different nouns and verbs were used so that the students had a new context to consider.



verbal situation. The problem situation itself was not printed on the test page. This prevented reading difficulties and also was in keeping with the procedures for the interviews in which the problems were presented orally. Another subtest, explained below, contained sentence-writing items in a free response format.

The assignment of items to test forms for the 12 objectives for problem-solving 0-20 and 0-99 exactly paralleled the assignment of sentence-writing items. That is, there was one item per objective assigned to one of the three forms. The two items total per verbal problem type—one for 0-20 and one for 0-99—were assigned to different forms. The problem—solving items, which were also in Set A or B, required the student to listen to the story, which was not printed in the test booklet, and to choose the correct solution.

All of the questions in the multiple-choice section of the tests were read to the children and then the key phrases were repeated; in the case of the verbal problems for the sentence-writing and problem-solving objectives, the entire story situation was read twice. The children then marked an X on one of the four response choices: the solution, two distractors, and the "puzzled face," an option which indicated "I have not learned this yet." The response choices, symbols, and pictures were not read or explained to the children (except for the "puzzled face").

The "puzzled face" option was provided to avoid unnecessary frustration and to reduce the amount of random guessing. Although it was expected that the "puzzled face" choice would be used throughout the achievement testing because there would always be objectives not yet introduced and/or



mastered, this option was particularly useful for baseline assessment such as for algorithms. Marking the "puzzled face" allowed children to give a positive response indicating that they hadn't learned to find the answer to the question.

Sentence-writing free-response subtests. The 12 individual sentence-writing objectives (verbal problem types) for the numbers 0-20 and 0-99 were also assessed in a free-response format in which a verbal problem was read twice to the students who were directed to write a sentence for the situation and not solve the sentence. There were two 0-20 and two 0-99 items per form; all items were in Set A (see Table 4).

Speeded subtests. There were 12 addition and 12 subtraction facts on each of the three forms; the first six problems in each case covered the facts from 4 to 9; the last six involved 10 to 18 (see Table 5).

The addition and subtraction recall subtests were introduced by the test administrator; then specific directions on a tape recording preceded the items presented with intervals of 2 seconds' working time for both addition and subtraction. The intervals were based on previous studies in this area (Romberg, 1975). The children wrote their answers in designated spaces, leaving spaces for unknown facts empty. There was a short break between the two subtests.

Addition and subtraction algorithm timed subtests (S-6). Since it would have been unnecessarily frustrating to assess baseline algorithmic proficiency under timed conditions with the two full-length subtests (24 items) developed for achievement monitoring after the A topics (Buchanan



Table 4
Outline of Sentence-writing Free Response Subtest Items

Item ID ^a	Form R	Form S	Form T
1A	Sentence-writing 0-20 subt-comparison 11-15	Sentence-writing 0-20 add-part part whole 11-15	Sentence-writing 0-20 subt-simple separating 11-15
2B	Sentence-writing 0-99 add-part part whole 0-99	Sentence-writing 0-99 subt-simple separating 0-99	Sentence-writing 0-99 subt-comparison 0-99
3C	Sentence-writing 0-99 subt-join-addend 0-99	Sentence-writing 0-99 subt-part part whole-addend 0-99	Sentence-writing 0-99 add-simple joining 0-99
4D	Sentence-writing 0-20 add-simple joining 11-15	Sentence-writing 0-20 subt-join-addend 11-15	Sentence-writing 0-20 subt-part part whole addend 11-15

^aThe numeric ID refers to the items as they are labeled in the computer printout reproduced in Appendix B. The alpha ID refers to the actual tests (see Appendix A).

Table 5
Outline of Addition and Subtraction Facts Recall Items--Speeded Subtests

Item ID ^a	Form R	Form S	Form T
	Addition Facts Rec	all Subtests	
1C	1 + 5	3 + 1	2 + 4
2 D	3 + 2	2 + 5	6 + 3
3E	4 + 4	1 + 6	5 + 2
4 F	3 + 6	7 + 2	2 + 3
5G	4 + 3	2 + 6	5 + 0
6H	6 + 2	3 + 5	1 + 3
7 I	5 + 8	4 + 8	9 + 2
8J	6 + 9	3 + 7	6 + 6
9K	9 + 3	5 + 9	4 + 7
10L	5 + 7	6 + 8	7 + 6
11M	8 + 9	8 + 7	9 + 7
12N	3 + 8	4 + 9	6 + 4
	Subtraction Facts R	ecall Subtests	
1C	5 - 1	7 - 1	3 - 2
2D	9 - 2	8 - 4	. 6 - 4
3E	8 - 7	9 - 5	9 - 1
4 F	5 - 3	7 - 4	7 - 3
5G	7 - 6	8 - 6	6 - 1
6Н	8 - 5	4 - 3	7 - 5
71	14 - 7	11 - 2	10 - 4
8J	12 - 5	13 - 8	13 - 9
9K	11 - 8	12 - 7	14 - 8
10L	13 - 7	15 - 9	11 - 7
11M	12 - 9	10 - 2	12 - 4
12N	15 - 8	16 - 7	17 - 9

The numeric ID refers to the items as they are labeled in the computer printout reproduced in Appendix B. The alpha ID refers to the actual tests (see Appendix A).



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& Romberg, 1982b), two abbreviated subtests of 5 items each were created for S-6 only. The subtests contained a sample of three 2-digit and two 3-digit problem types, some requiring regrouping and others not (see Table 6). Although 3-digit numbers (and algorithms) were not included in instruction at any time during the study, possible generalization of algorithmic skills to those numbers was of interest in the study. One and one-half minutes were allowed for the three 2-digit problems and also for the two 3-digit problems; that is, students were required to move on to the 3-digit problems after one and one-half minutes. The total time for each subtest was three minutes.

Data Collection Procedures

Test Groups

Following the matrix sampling plan described earlier, students in each class were randomly assigned to one of three test groups containing 11-12 students per group in school 3 and 25-26 per group in school 1. The test groups were assigned to one of the three test forms (R, S, T) according to the schedule in Table 7. Since there were three test times, the students took each form of the test once. However, because some items also appeared in the grade 1 tests, students would have taken these items at least once and in some cases twice before. Because of absences and student mobility, the number of students actually tested after each topic varied somewhat. Also, because the classes moved at different paces through the topics, particularly where there was homogeneous grouping, it was not always possible to test an entire test group at one sitting.



Table 6
Outline of Addition and Subtraction Algorithm Items--Timed Subtests (S-6)

Form R	Form S	Form T
	Addition Algorithm Subtest	
2-digit + 2-digit (no regrouping)	2-digit + 2-digit (no regrouping)	2-digit + 2-digit (regrouping)
2-digit + 2-digit (regrouping)	2-digit + 2-digit (regrouping)	2-digit + 2-digit (regrouping)
<pre>l-digit + 2-digit (regrouping)</pre>	2-digit + 1-digit (regrouping)	2-digit + 1-digit (no regrouping)
3-digit + 2-digit (no regrouping)	3-digit + 3-digit (no regrouping)	3-digit + 2-digit (regrouping)
3-digit + 3-digit (regrouping)	3 addends (regrouping)	3-digit + 3-digit (regrouping)
	Subtraction Algorithm Subtes	t
2-digit - 2-digit (no regrouping)	2-digit - 2-digit (regrouping)	2-digit - 2-digit (no regrouping)
2-digit - 2-digit (regrouping)	2-digit - 2-digit (regrouping)	2-digit - 2-digit (regrouping)
2-digit - 1-digit (regrouping)	2-digit - 1-digit (no regrouping)	2-digit - 1-digit (regrouping)
3-digit - 3-digit (no regrouping)	3-digit - 2-digit (regrouping)	3-digit - 2-digit (no regrouping)
3-digit - 3-digit (regrouping)	3-digit - 3-digit (no regrouping)	3-digit - 3-digit (regrouping)



Table 7
Assignment of Students to Test Form

Admi	lnistration	Time
S-4	S-5	S - 6
Test Form As	ssignment	
T	S	R
R	T	S
S	R	T
	S-4 Test Form As	Test Form Assignment T S R T

Schedule

The achievement monitoring tests were given as soon as possible after each topic was completed. Since instruction in each sentence-writing topic generally took about three to five weeks and was followed by an intervening DMP topic which was not a part of the study, there were six to eight week intervals between administrations.

Procedure

The tests were administered by Center staff members in one 35-40 minute sitting during the regular mathematics class period. The practice of having Center administrators provided uniformity in administration procedures, relieved the teachers from this responsibility, avoided later "teaching to the test," and freed the teacher to participate in interviews with other Center staff.

Since most students had already participated in four similar test sittings in grade 1 (see Buchanan & Romberg, 1982a), there was little administrative difficulty in giving the tests. Students were familiar and comfortable with most administrators and the general procedure as well as the format and some items or item types for the multiple-choice and recall subtests. However, this familiarity also had a negative effect since some students became increasingly bored by the repetitive testing. The teachers were helpful in motivating the students but none the less some were test-weary by the S-6 test time. On the other hand, there were students who continued to enjoy the tests.

As described previously, the multiple-choice questions were read aloud. Most children had little problem following along. Pacing the



multiple-choice subtest was at the administrators' discretion, with the general policy being to move the test along by encouraging children who were pondering at length to "mark the puzzled face." Apparently because of this option, the children did not appear to be discouraged by items that they had not met in formal instruction at the time.

One problem occurred during the free response sentence-writing subtest which may have negatively aff ted performance on certain items. Despite reminders, some students failed to listen to the entire verbal story before beginning to write the number sentence. Since the numbers in the written sentence must be reversed from their order in the story for the comparison and join-addend situations, errors resulted when students did not correct themselves after starting the sentence with the first number they heard.

The taped subtests could not be stopped once started; however, examination of the response spaces showed that almost all children kept their place well. Even though there was only 2 seconds' working time between items, students were able to count out answers on their fingers, so that the responses represent a mixture of facts actually committed to memory and "facts" determined during the test. Some children expressed enjoyment in doing the recall tests, but for some the pressure of a timed test was continually frustrating. The baseline algorithm timed testing at S-6 did not appear to be overly threatening, though a few students were obviously discouraged by it; there were no difficulties with format.



<u>Results</u>

Scoring the Tests

Subtest statistics and item parameters for each form were computed for the multiple-choice subtest, the sentence-writing subtest, the addition facts recall subtest, and the subtraction facts recall subtest at each administration time using the LERTAP program (Nelson, 1974). The algorithm baseline timed tests (S-6) were scored by hand and no item or test statistics other than means were computed. Scores representing progress on the objectives were then created for each administration by combining in a single score across forms the proportion correct for all individual items related to that objective; similarly, scores for the composite objectives incorporated the scores for all objectives related to the same content area. Thus, rather than item difficulties, or p values, what might be called "objective difficulties" were calculated to represent group progress toward mastery of the objectives. Since under the matrix sampling plan most objectives were represented by items on at least two and usually all three forms, the "objective difficulties" at any one test time were less affected by possible bias in the random assignment of students to test group than the item and subtest statistics.

Subtest and Item Statistics

Although the results by objective are of primary interest in the study, a brief report of the subtest and item results is offered first as background. The multiple-choice subtest was not developed as a standard norm-referenced measure but rather as a criterion-referenced test with each item



on any one form assessing mastery of a specific objective. Therefore, the total score on the subtest is an aggregate measure of performance on several objectives. Also, rather than the usual expectation that about half of the students would respond correctly to each item, it was expected that almost none, some, or almost all of the students might answer correctly depending on the status of instruction at the time of the test. Another factor affecting the subtest and item data for the multiple-choice subtest was guessing. The "puzzled face" or "I haven't learned this yet" cption was offered to prevent random guessing but guessing still occurred. Other factors affecting the item and subtest analyses for all subtests were the relatively short test length and small population of students tested.

Tables 8-10 report the multiple-choice and recall subtest statistics for all forms and administration periods for the total population. Information included is the number of individuals tested, number of items, mean, standard deviation, highest and lowest score, Hoyt estimate of reliability, and the standard error of measurement. Since the sentence-writing subtest had only four items per form, subtest statistics are not reported.

The means and standard deviations indicate that the three forms were about equivalent in difficulty within each of the four administration periods. The reliabilities for the multiple-choice subtest ranged from .51 to .75 which is satisfactory for tests of this type. For the addition and subtraction recall subtests, the respective reliabilities ranged from .70 to .88 and .71 to .88. The recall subtests, although short, contained only one type of item so that somewhat higher reliabilities would naturally be expected.

Table 8

Objectives Subtest Statistics

for Forms R, S, and T for Three Administration Times

Administration Time	Form	Number of Individuals	Number of Items	Mean	· S.D.	Highest Score	Lowest Score	Hoyt Est. r	S.E.M.
	R	30	19	13.10	2.44	17	. 7	.53	1 49
S 4	S	35	19	10.69	3.15	19	4	.53 .66	1.63 1.79
	T	34	19	10.97	2.62	15	6	.60	1.62
	R	30	19	12.63	2.46	18	8	.51	1.67
\$ 5	S	30	19	12.13	3.04	18	7	.64	1.77
	Ţ	32	19	13.81	2.80	19	7	.74	1.39
	R	29	19	12.76	3.19	18	6	.72	1.65
\$6	\$	27	19	12.44	3.40	18	4	.75	1.67
	Ţ	33	19	13.64	2.45	19	8	.62	1.46

Table 9

Addition Facts--Speeded Subtest Statistics

for Forms R, S, and T for Three Administration Times

ion	Form	Number of Individuals	Number of Items	Mean	S.D.	Highest Score	Lowest Score	Hoyt Est. r	S.E.M.
	·R	30	12	7.83	2.36	11	2		
	S	35	12	7.09	2.50			.73	1.18
	T	34				12	3	.76	1.17
			12	7.88	2.89	12	1 .	.84	1.10
	, R	30	12	8.50	2.26	12	4	70	
	S	30	12	7.60	3.02	12		.70	1.19
	T	32				12	2	.83	1.18
			12	10.56	2.14	12	2	.81	.88
	R	29	12	8.62	3.22	12			
	S	27 .	12				0	.87	1.10
	T			9.19	3.04	12	0	.88	1.02
		33	12	10.52	2.15	12	2	.82	.88

Table 10
Subtraction Facts Recall--Speeded Subtest Statistics
for Forms, R, S, and T for Three Administration Times

Administration Time	Form	Number of Individuals	Number of Items	Mean	S.D.	Highest Score	Lowest Score	Hoyt Est. r	S.E.M.
	R	30	12	7.13	2.89	12	1	.79	1.26
S4	S	35	12	6.20	2.54	12	0	.77	1.15
	T	34 .	12	5.15	3.44	12	0	.88	1.12
	R	30	12	7.83	2.51	12	2	.78	1.13
\$5	S	30	12	7.27	3.55	12	0	.88	1.18
	T	32	12	7.03	2.65	12	0	.78	1.18
•	R	29	12	7.45	3.28	12	0	.85	1.23
Só	S	27	12	7.89	3.11	12	0	.84	1.18
	T	33	12	8.12	2.29	12	4	.71	1.18

Item statistics for all subtests (including the sentence-writing subtest) for all forms and administration periods appear in Appendix B. The tables include the number and percentage of students selecting each response (the p-value or item difficulty), the point-biserial and biserial correlations with the subtest and the total test, and the average subtest and total test scores for individuals selecting the correct response.

For the multiple-choice subtest the p-values for 15 of the 57 items (26%) remained constant (± 5%) overall from S-4 to S-6. For 31 items (54%) the p-values demonstrated an overall increase from S-4 to S-6 and they decreased for 11 items (19%). There were 8 items with p-values \geq 90.0% at S-4; for these items at S-6, 3 p-values stayed constant (± 5%), and there were 2 increases and 3 decreases. (The decreases were very slight—to no lower than 86.2%.)

For most multiple-choice items on which there was improvement, the increase was modest, about 10 to 20 percentage points; however, for a few items improvement was dramatic. Item 9K in Form T which assessed the sentence-writing 0-20 subt-comparison objective had scores for S-4, S-5, and S-6, respectively, of 26.5%, 53.1%, and 72.7%. Another sentence-writing item, item 10L in Form T which assessed the sentence-writing 0-99 add-part part whole objective, increased from 64.7% at S-4 to 90.6% and 97.0% at S-5 and S-6. An item measuring counting back performance (item 17S in Form T) had a p-value of 38.2% at S-4 which improved to 75.0% at S-5, though thereafter the p-value dropped somewhat to 66.7% at S-6. There were no similarly dramatic decreases in p-values; most decreases were less than 10 percentage points.

The p-values for the 12 items in the sentence-writing free response subtest improved in 7 cases and remained constant in 5 from the S-4 to S-6 test times. For the 4 items which had p-values \geq 90.0% at S-4, there was one increase and 3 p-values stayed constant. One of the two items for which progress was dramatic was again for a comparison sentence-writing objective, though this time for the 0-99 domain. Item 2B in Form T had consecutive p-values of 11.8%, 40.6%, and 57.6%. The item assessing the sentence-writing 0-20 subt-part part whole-addend objective (item 4D in Form T) also showed much improvement, 41.2% at S-4 to 84.4% at S-5, followed by a slight drop at S-6 to 78.8%. Since all five items for which there was the most notable improvement were on Form T, it is possible that there was some bias in the test groups or administration which deflated S-4 scores and/or inflated S-6 scores.

P-values for the individual items (basic facts) in the two recall tests varied greatly within test time according to number size. For example, in Form R at S-4, the items for the "easy" facts 6 + 2 and 4 + 4 had p-values of 86.7% and 96.7%, respectively, while the "hard" facts/items 6 + 9 and 5 + 8 had p-values of 26.7% and 40.0%. Item difficulties increased quite steadily over the test times for most items while the relative difficulties within test time remained constant. For example, the p-values for 6 + 2 and 6 + 9 increased from 86.7% and 26.7%, respectively, at S-4 to 96.7% and 36.7% at S-5, and 93.1% and 48.3% at S-6. There was some effect of item position on p-values in the recall subtests, but this was not systematically examined since the items were randomly ordered and the aggregate scores for all items associated with the objective are of primary interest in the study.



The biserial correlations for the majority of items were adequate or better (>.30) for the correct response and negative (<.20) for incorrect responses. The "puzzled face" option was used appropriately as indicated by the biserials for this response choice, which were almost always strongly negative. That is, children who chose this response for particular items also had low scores on the total subtest.

The irregular biserial correlations can sometimes be related to the criterion-referenced nature of the subtest items. When an item was extremely easy because an objective had been mastered by most students, low positive or negative biserial correlations for the correct response sometimes occurred depending on subtest scores for the few students not selecting the correct choice. For example, for Form T item 1C (writes numbers 0-99) in administration S-6, the biserial correlation for the correct response was -.34 while for the only distractor selected, it was .43. This was the case because the single child who missed the item, probably due to carelessness, had a total subtest score of 16 while the mean for the 32 children selecting the correct response was 13.56.

Similar irregular biserials occurred for very difficult items on which mastery was not expected, for instance when a few poorer students guessed the correct response while the better students appropriately described themselves by choosing the puzzled face. For some items the appropriate use of the "puzzled face" option with consequent "good" biserials probably weakened the other distractors, causing them to have



inadequate biserials. The items for the facts recall and sentence-writing-free response subtests had satisfactory biserial correlations almost without
exception.

Interesting item statistics in terms of the study as a whole occurred for items assessing the sentence-writing objectives for the two addend and the comparison situations. An example (item 11M, Form R) is presented in Table 11. The distractor containing the reverse operation (plus sign) was very attractive at all test times. All of the items for these three subtraction situations included one or two distractors which were addition sentences, most of which were powerful distractors, although this varied from test time to test time according to problem type. In contrast, the distractors containing the solution obtained from reversing the operation in the problem-solving items were rarely used. The power of the sentencewriting reverse operation distractors may be related to the tendency shown in the individual interviews to use additive strategies such as counting up from a given number or adding on with manipulatives in solving some subtrac-. tion verbal problems, particularly the comparison and join-addend problems. Reversing the operation to solve the problem was quite infrequent. (See Kouba & Moser, 1980a,b.)

Progress on the Objectives

In this section the scores resulting from aggregating the item data to create "objective difficulties" will be discussed. These data which represent progress on each objective will be related to the instructional program the students experienced. The proportion correct for each individual objective



Table 11

Item Statistics for the Sentence-writing 0-20, subt-join-addend (11-15) Item, Item 11M, Form R^a

Test Time	Response Choice	Proportion	Biserial Correlation	Total Subtest Score
S-4 N = 30	<pre>(1) 8 - 6 = ☐ (includes solution) (2) 14 + 8 = ☐ (reverse operation) (3) 14 - 8 = ☐ (correct response) (4) puzzled face</pre>	6.7 70.0 20.0 3.3	67 00 .52 77	10.00 13.10 14.83 9.00
S-5 N = 30	(1) (2) (3) (4)	.0 56.7 26.7 16.7	.00 17 .46 34	.00 12.35 14.00 11.40
S-6 N = 29	(1) (2) (3) (4)	6.9 51.7 31.0 10.3	37 .18 .29 69	10.50 13.20 13.78 9.00

The item read: This number story is about a plant. Mark the number sentence that tells how to find the answer. A plant was 8 cubes tall. It grew some. Now it is 14 cubes tall. How much did it grow?



and for the composite objectives for the total population at all administration times is reported in Table 12; results for each school and class appear in Appendix C. As noted previously, only the data for individual objectives are of interest here—data for the composite objectives were prepared for subsequent analyses.

As discussed previously, the sentence-writing objectives for the S and A topics were not stated in terms of particular verbal problem types in the instructional materials, but for purposes of achievement monitoring each type was treated as an individual instructional objective. This was also true for the problem-solving objectives. Since each problem type is represented by only one item, "objective difficulty" is the same as a "p-value" or item difficulty and therefore the results for sentence-writing and problem-solving must be considered with caution.

Numerousness; ordering, place value. Even though there was no formal instruction on the four prerequisite objectives related to the numbers 0-99 prior to or during the fall semester, performance on three of the four objectives indicated that many students were familiar with the numbers 0-99 at S-4 and that they continued to make modest improvement through the fall. At S-4 and S-6, respectively, the scores were 66.7% and 77.5% for the objective writes 0-99, 72.7% and 85.4% for represents 0-99, and 72.7% and 78.7% for orders 0-99.

The fourth prerequisite objective (notation 0-99) was extremely difficult relative to the others; in fact, it was the single most difficult objective assessed in the fall achievement monitoring program with successive scores at S-4, S-5, and S-6 of 13.1%, 12.0%, and 12.4%. The low



Progress Toward Objectives Across Administration Times as Represented by Proportion of Students Answering Items Correctly for Total Population

Description of Objectives	Resu	ilts for ()bjectives	}	Results for Composite Objectives				
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6	
rerequisite Instructional Objectives	-							· · · · · · · · · · · · · · · · · · ·	
Mercusness									
writes 0-99	3	66.7	69.6	77.5					
represents 0-99	3	72.7	82.6	85,4	6	40 7	76 1	01 F	
·	•		4410	4,50	U	69.7	76.1	81.5	
dering, Place Value orders 0-99	•								
notation 0-99	3 3	72.7	82.6	78.7					
notation 0-33	3	13.1	12.0	12.4	6	42.9	47.3	45.5	
structional Objectives for S,A Topics									
en Sentences									
add 0-20	3	84.9	89.1	88,8					
subt 0-20	3 3	84.9	93.5	89.9					
1 0 10	-			07.7					
+ 0-10 T 11 20	3	88.9	90.2	86.5					
1 11-20	3	80.8	92.4	92.1	6	84.9	91.3	89.3	
entence-Writing 0-20 (multiple choice)									
add-simple joining (B)	1	91.2	100.0	100.0					
subt-simple separating (A)	ī	94.3	83.3	100.0					
subt-part part whole-addend (B)	1	62.9	50.0	59.3					
add-part part whole (A)	1	96.7	96.7	96.6					
subt-comparison (A)	1	26.5	53.1	72.7					
subt-join-addend (B)	ĩ	20.0	26.7	31.0	6	65.7	68.5	77.0	
ntence-Writing 0-20 (free response)				\	•	4411	VV13	77.0	
add-simple joining	1	06 7	02.2	06 6					
subt-simple separating	1	96.7	93.3	96.6	ı				
subt-part part whole-addend	4	100.0	96.9	97.0					



Table 12 (continued)

	Resu	lts for ()bjectives	Results for Composite Objectives				
Description of Objectives	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
				· · · · · · · · · · · · · · · · · · ·				J0
entence-Writing 0-20 (continued)								
add-part part whole	1	94.3	96.7	100.0				
subt-comparison	1	36.7	53.3	48.3				
subt-join-addend	1	40.0	53.3	59.3	6	68.2	79.9	80.
entence-Writing 0-99 (multiple choice)					·	00,1	1717	00,
add-simple joining (B)	_	00 0	00.0	00 (
subt-simple separating (A)	1	80.0	90.0	92.6				
subt-part part whole-addend (B)	1	86.7	86.7	72.4			4	
	1	53.3	53.3	48.3				
add-part part whole (A)	1	64.7	90.6	97.0				
subt-comparison (A)	1	22.9	30.0	37.0				
subt-join-addend (B)	1	11.8	21.9	21.2	6	52.5	62.0	61.
entence-Writing 0-99 (free response)								
add-simple joining	1	88,2	84.4	87.9				
subt-simple separating	<u>-</u>	91.4	100.0	96.3	,			
subt-part part whole-addend	i	62.9						
add-part part whole	i		70.0	74.1				
Subt-comparison		86.7	73.3	86.2				
subt-join-addend	1 1	11.8	40.6	57.6				
•	1	30.0	33.3	37.9	6	62.1	66.9	73.
lgorithms (multiple choice)	•							
add 0-99	3 ^a 3 ^a	51.5	62.0	59.6				
subt 0-99	3 ^a	30.3	42.4	44.9	6	40.9	52.2	52,
oninstructional Objectives					•	,	<i>3-</i> 1.	7=1
roblem-Solving 0-20	•	- • •						
add-simple joining (B)	1	94.1	96.9	87.9				
subt-simple separating (A)	1	93.3	86.7	86.2				
subt-part part whole-addend (B)	1	74.3	90.0	85.2				
add-part part whole (A)	1	82.4	93.8	100.0				
subt-comparison (A)	1	62.9	76.7	85.2				
subt-join-addend (B)	1	86.7	86.7	82.8	6	81.8	88.6	88.

and of the three items did not require regrouping.

continued

	Re	8	Results for Composite Objectives						
Description of Objectives	Number				Number				
	of Items	S-4	S - 5	S - 6	of Items	S-4	S-5	S-6	
roblem-Solving 0-99								N	
add-simple joining (B)	1	60.0	56.7	62.1					
subt-simple separating (A)	1	29.4	53.1	33.3					
subt-part part whole-addend (B)	ī	5.9	28.1	27.3					
add-part part whole (A)	1	37.1	66.7	44.4					
subt-comparison (A)	1 a	53.3	53.3	51.7					
subt-join-addend (B)	1 ^a	42.9	53.3	59.3	6	37.4	51.6	45.5	
Counting									
on 9-31	5	73.2	76.6	76.5					
back 9-31	4	58.1	63.9	67.8	9	66.7	71.0	72.7	
ecall of Basic Facts (Speeded Tests)									
add 0-20					36	63.2	74.4	79.1	
sub* 0-20					36	51.0	61.4	65.3	
algorithms (Timed Tests)		•							
add 2-digit, no regrouping	3	-	~~	63.7					
add 2-digit, regrouping	6	4115		34.1	9			44.0	
add 3-digit, no regrouping	2		-	43.2					
add 3-digit, regrouping	3	-		14.6	5		-	26.0	
3 2-digit addends, regrouping	1	-		13.9	1	••■		13.9	
subt 2-digit, no regrouping	3	**		54.0					
subt 2-digit, regrouping	6	-		11.5	9			25.7	
subt 3-digit, no regrouping	3	** ,		44.2					
subt 3-digit, regrouping	3	6 100	-	1.8	6		W40	23.0	
		Numh	er of Sub	dectab			<u> </u>		
		S-4	S-5	S-6					
Form R	Ŋ =	30	30	29(38) ^c					
Form S	И =	35	30	27 (36)					
Form T) =	34	32	33 (39)					

 $59 \, {}_{\rm h}^{\rm a}$ This item did not require regrouping.

numbers in parentheses are the N's for the Algorithm Timed Tests which were given on a different day.

For those objectives for which there are three items, the number of subjects represented in the proportion correct at a particular test time is ascertained simply by summing the N's for the three forms; however, when there are more or than three items, the N is increased or decreased by 27-39 subjects per item.

scores can be readily explained by examining the content of the three items for this objective which required the students to do fairly sophisticated regrouping of numbers, and, for two of the three items, to understand and apply the DMP notation for place value, a notation which employs parentheses and is unique to DMP. For example, item 8J in Form T contained the stem 7(10) + 18 which had to be renamed as 78, 718, or 88. Performance on this type of item was very instruction-dependent, whereas it was probably possible for students with just general familiarity with the numbers 0-99 to score quite well on the items for the other three objectives prior to instruction.

The near-mastery level of performance on these prerequisite objectives undoubtedly enhanced progress on the sentence-writing 0-99 and problem-solving 0-99 objectives (discussed below). Such success was also desirable from an i-structional point of view since the A topics to be taught in the spring semester assumed mastery of these objectives and there was only one topic between the S and A topics in which instruction on these numbers would occur.

Open sentences. Instruction on open sentences had been carried out in Topics S-1 through S-3 in grade 1 and was continued in S-4, S-5, and S-6 with mastery expected after S-6. Status at S-4 on both addition and subtraction open sentences approached mastery (the score for both objectives was 84.9%). There was some improvement at S-5 (89.1% for addition and 93.5% for subtraction) and then a slight drop at S-6, to 88.8% and 89.9%. Therefore, these objectives had virtually been mastered at the completion of S-6, as intended by the program.

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A proportion correct > 90% is the criterion for mastery. While it is recognized that not every student will have mastered an objective using this criterion, it allows for measurement error and assures that most students have reached mastery.

Sentence-writing 0-20. The sentence-writing data in Table 12 are annotated by the labels described earlier, Sets A and B, according to whether or not item characteristics such as syntax corresponded to interview tasks. This distinction may be useful in future analyses relating interview and achievement monitoring data.

Mastery of sentence-writing for numbers 0-20 was expected after S-6. No predictions of mastery at particular points in the series were established for the different verbal problem types; however, since the various situations were introduced and emphasized in particular topics, it is possible to relate performance to instruction.

Both addition sentence-writing objectives (joining and part part whole) and the subt-separating objective had been mastered at S-4 in both the multiple-choice and free-response setting. This status was maintained at S-5 and S-6 (though for separating there was a decrease at S-5 which was negated at S-6).

For two of the other three subtraction objectives, the two test contexts gave somewhat inconsistent results. Although there was negligible change on the subt-part part whole-addend objective from S-4 (62.9%) to S-6 (59.3%) in the multiple-choice setting, performance improved from 41.2% at S-4 to 78.8% at S-6 in the free-response mode. In contrast, there was great progress on the subt-comparison objective (from 26.5% at S-4 to 72.7% at S-6) in the multiple-choice context but considerably less growth in the free-response situation (36.7% to 48.3%). The subt-join-addend objective showed consistent but no dramatic improvement.



moving from 20.0% at S-4 to 31.0% at S-6 (multiple-choice) and from 40.0% to 59.3% (free-response).

The distractors offered for the multiple-choice sentence-writing items were restricted to (a) a canonical sentence containing the reverse operation sign and the two given numbers in appropriate order and (b) a canonical sentence containing either operation with the solution and one of the given numbers, or, containing either operation and a repeated given number. The only exception was a distractor for one item which had no operation sign and combined the given numbers (9, 4); i.e., 94 = As noted previously in the discussion of item data, students showed a strong tendency toward selecting the response choice or choices containing the addition sign (reverse operation) for the three nonseparating situations. This effect held true even after the instructional emphasis on these three situations. The selection of an addition sentence to represent the comparison and subt-join-addend problem situations, though an incorrect response here, may be related to the successful strategies exhibited in the individual interviews in which students solved these two tasks in an additive manner (Kouba & Moser, 1980a,b); the parallel does not appear to hold for the subt-part part whole-addend situation. These and other relationships between the achievement monitoring and interview data will be examined further in future analyses.

The emphasis of instruction in S-4, S-5, and S-6 was on the use of the part part whole chart, particularly in analyzing missing addend and comparison situations. Improved performance on the comparison objective and two addend objectives seemed to indicate that instruction was effective.



However, none of these three more difficult subtraction objectives was mastered though the intent of the S topics was mastery of all sentence-writing 0-20 objectives after S-6.

Sentence-writing 0-99. The sentence-writing objectives for 0-99 were not covered in the S topics. However, given their familiarity with the numbers 0-99, many students apparently could generalize from work with sentences 0-20 to sentences with larger numbers. In both the multiplechoice and free-response contexts, the scores for most of the 0-99 objectives at most test times were quite comparable to those for the 0-20 objectives. At S-4 the scores for sentence-writing joining and separating 0-99 approached mastery (80.0% and 86.7%) in the multiple-choice context and were even better on the free-response test (88.2% and 91.4%). For the add-part part whole objective, the free-response mode was easier (86.7%) than the multiple-choice mode (64.7%) at S-4. By S-6 mastery or virtual mastery was evident for these three situations in both test settings, except for the subt-separating objective in the multiple-choice setting which inexplicably dropped from 86.7% at S-4 to 72.4% at S-6. Since the freeresponse score for separating was 96.3% at S-6, there may have been some anomaly in the testing which explains the unusually low multiple-choice score.

As was true for the 0-20 domain, the other three sentence-writing objectives were more difficult and the distractors containing the addition sentence were attractive. Little change was shown on the subt-part part whole-addend objective on the multiple-choice setting (53.3% to 48.3% from



S-4 to S-6) but some growth occurred in the free-response situation (62.9% to 74.1%). There was substantial growth on the comparison objective, notably 11.8% at S-4 to 57.6% at S-6 (free-response) and 22.9% to 37.0% (multiple-choice) and a modest improvement on the join-addend objective in both modes from 11.8% to 21.2% (multiple-choice) and 30.0% to 37.9% (free-response). Thus, though no instruction in the numbers 0-99 or sentence-writing 0-99 had taken place, students were seemingly quite able to generalize instruction in sentences with smaller numbers to sentences with larger numbers.

Algorithms. There was no instruction on algorithms for addition and subtraction of 2-digit numbers during the fall semester, since these objectives were not introduced until A-1 and were to be mastered at A-4. None the less, in a multiple-choice context in which two of the three items for each objective required regrouping, students were already able to select the correct answer about one-half of the time for the 2-digit addition algorithm at S-4 (51.5%) and about one-third of the time (30.3%) for the 2-digit subtraction algorithm. Modest progress was made by S-6, to 59.6% and 44.9%, respectively. The scores may be inflated because some students were observed counting or tallying the solution rather than solving algorithmically.

Problem-solving 0-20. The problem solving items required the child to select the correct answer for the verbal situation; again the data in Table 12 are labeled for Sets A and B though this distinction is not of interest here.

Performance for four of the six problem-solving 0-20 objectives (addjoining, add-part part whole, subt-separating, and subt-join-addend) was



at or near mastery at S-4 (respectively, 94.1%, 82.4%, 93.3%, 86.7%).

Scores for the subt-part part whole-addend and subt-comparison objectives were also relatively high at S-4 (74.3%, 62.9%). At S-6 scores for all problem-solving objectives were at or near mastery, though there were nominal decreases for the joining, separating, and join-addend objectives. Improvement on the comparison and add-part part whole situations was substantial and probably can be attributed to instruction.

The distractors for the problem-solving items were (a) the number resulting from a reverse operation, and (b) either a given number or a miscount just one number off from the correct response. For the more difficult subtraction problems, there was no preference shown for the reverse operation, contrary to what might have been indicated from the results for the sentence-writing items.

It is of particular interest in the study as a whole that even though only three of the six comparable sentence-writing 0-20 objectives had been mastered, problem - solving performance was excellent on all verbal situations assessed. A high level of problem - solving skill prior to any instruction had been demonstrated even in the initial interview of the study in grade 1 (Kouba, Moser, Buchanan, Carpenter, & Cookson, 1980). The discrepancy between S-6 scores on the subt-join-addend sentence (31.0%, multiple choice; 59.3% free-response) and verbal problem (82.8%) is especially striking. Sentence-writing performance suffered primarily because of a tendency to choose the distractor containing the reverse operation (multiple-choice) or to write an incorrect addition sentence



(free-response). As discussed above, this may be related to the preference for additive strategies exhibited in the interviews.

Problem-solving 0-99. Some students were apparently able to generalize their problem-solving 0-20 skills to problems with larger numbers
(though not to a mastery level) despite their lack of instruction in numbers
0-99, sentences 0-99, or algorithms. However, the absence of growth and/or
the erratic pattern of scores for four of the six objectives suggests that
instruction in the larger numbers or algorithms is necessary before further
consistent progress can be made. The modest, steady improvement on the two
subtraction addend problems can probably be attributed to the emphasis in
instruction on solving these sicuations with smaller numbers.

It is difficult to compare performance on the six problem-solving 0-99 objectives because the items for two of the objectives—the subtcomparison and subt-join-addend—did not require regrouping as did items
for the other four objectives, so these items were no doubt less difficult than they might have been. Scores for both were in the 40-60% range
at all test times. Among the other four objectives, the add-joining objective was easiest as would be expected with scores of 60.0% at S-4, 56.7%
at S-5, and 62.1% at S-6. However, the add-part part whole objective was
considerably more difficult at two of the three test times (37.1%, 66.7%,
44.4%). Scores for the subt-separating and subt-part part whole-addend
objectives were generally lower than for the two addition objectives, though
data for the separating objective were erratic (29.4%, 53.1%, and 33.3%).
The subt-part part whole-addend objective had consecutive scores of 5.9%,
28.1%, and 27.3% and appeared to be the most difficult objective.

The somewhat unstable scores for the add-part part whole and subtseparating situations are intriguing. A partial explanation is offered
by the choice of distractors. At S-4 and S-6 for the addition objective and
at S-6 for the subtraction objective there was an apparent tendency to attempt
to solve the problem algorithmically by using a "buggy" algorithm; thus the
wrong answer was selected as a response. It may be that at S-5 relatively
more students counted out or estimated the answer, possibly because the test
administrator allowed more time.

Counting. There was no formal instruction in counting but it was expected that informal work, both at school and at home, or exposure to other mathematical experiences would promote growth. Modest progress on the counting back objective was evident (from 58.1% at S-4 to 63.9% and 67.8% at S-5 and S-6); however, little change was shown for counting on (73.2%, 76.6%, 76.5%).

Recall of addition and subtraction facts (speeded test). Increasing the speed with which students can respond to open sentences (basic facts) was not a formally stated objective of instruction for the S topics. However, in the course of instruction there were some worksheets used which were timed and the teachers employed standard techniques such as flash card drills to varying degrees. These factors plus practice on the facts both in open sentence and verbal problem context throughout the three topics could be expected to produce improved facility in recall.

Certain children were extraordinary in their ability to listen to the problem, lay down their pencil, count out the answer, pick up their pencil, and write the response within the time allowed. Some children seemed to be able to keep working on the previous problem(s) while at



the same time attending to the immediate problem. (For all test times there was an additional period of 3 or 4 seconds expended in pronouncing each problem, e.g., "Box F, 7 + 2.") Thus, the results represent a blend of facts actually committed to memory and of facts determined as the test progressed.

Moderate improvement for both addition (from 63.2% at S-4 to 79.1% at S-6) and subtraction (51.0% to 65.3%) facts recall was demonstrated. Although the scores were not as high as the near-mastery scores for open sentences, progress was satisfactory for these noninstructional objectives.

Algorithms (timed test) S-6. The baseline testing of algorithmic performance in a free-response, timed mode at S-6 indicated that about one-third of the time (34.1%) students could accurately solve 2-digit problems with regrouping and to a lesser extent (14.6%) 3-digit problems, despite the fact that they had had no instruction in algorithms or in 2-digit and 3-digit numbers. Performance on nonregrouping addition problems was even better (63.7%, 2-digit; 43.2%, 3-digit). Performance on subtraction for nonregrouping problems about equalled addition performance (54.0%, 2-digit; 44.2%, 3-digit) but at this point not many regrouping subtraction problems could be solved correctly (11.5%, 2-digit; 1.8%, 3-digit). Almost all students attempted all items so the timed aspect of the test was probably not a significant factor in performance.

Conclusion

In general overall progress from the S-4 to S-6 test times was modest with marked improvement for only a few objectives. The lack of substantial change can be attributed in part to the initially high scores for many



objectives. Also, instruction in the fall semester of grade 2 was directed toward only a few of the many objectives assessed.

The open sentence and sentence-writing 0-20 instructional objectives should have been mastered after S-6. Scores for the open sentence objectives indicated virtual mastery for both addition and subtraction, but only three of the six sentence-writing objectives had been mastered-add-joining, add-part part whole, and subt-separating--and they had been mastered at the first test time. S-4. There were discrepancies in scores between the multiple-choice and free-response contexts for the three remaining sentence-writing subtraction objectives, but in neither test mode was mastery demonstrated for any of these problem types. Results at S-6 for the closely related noninstructional objectives (facts recall -- speeded test, problem-solving 0-20) were not entirely consistent with the preceding results. Performance on the speeded tests was somewhat lower (more so for subtraction) than for open sentences; this difference may be largely attributable to the two dissimilar test modes, however. Scores for all six problem-solving objectives were near mastery level; apparently problemsolving skill did not depend on sentence-writing skill.

Performance on three of the four prerequisite instructional objectives for the numbers 0-99 approached mastery at S-6 though there was no instruction on these objectives. Scores for the other instructional objectives containing the numbers 0-99 reflected pupil confidence with these numbers and suggested that students were able to generalize behaviors for verbal problems with numbers 0-20 to the larger numbers even though no instruction had occurred with larger numbers. Performance on sentence-writing



0-99 in both the multiple-choice and free-response modes was only slightly lower than that for numbers 0-20. There was also some success on the problem-solving 0-99 objectives though scores were considerably lower than the comparable objectives with numbers 0-20. There was some familiarity with algorithms prior to instruction as well, particularly for addition. The addition algorithm could be utilized successfully at S-6 for 2-digit numbers requiring regrouping about one-third of the time in a free-response setting; there was only nominal success with the subtraction algorithm with comparable numbers in this mode. Performance in the multiple-choice context also indicated some knowledge of algorithms.



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Appendix A ADMINISTRATOR'S M'NUALS AND STUDENT TESTS FORMS R, S, T



Directions for Administering Achievement Monitoring Test R

Ccordinated Study #1 & #2

General Directions

Reading the Test. The first part of this test is in multiple choice format and is read aloud to the children. Read the questions exactly as they are printed in the directions; do not paraphrase. Each question is read twice—or the key phrases are repeated after the original question is read. Read the questions at a somewhat slower than conversational pace. The second part of the test involves verbal problems for which the child must write, but not solve, a number sentence. Again, you will read the number story twice. The third rart of the test, the basic facts speed test, will be administered via tage.

Since many children will not know how to do the majority of the test, expecially at the beginning of the year, they will no doubt want to ask questions or want you to repeat items yet again. Please do not allow this—instead, ask them to answer "as best they can" or to mark the "puzzled face" to snow they have "not learned this yet." Note also that reading the answers to the children is not permitted.

Since this is a group-administered test, verbal exchanges with individual children can be distracting and interfering-try to establish a policy of not talking and not allowing the children to talk in between questions.

Should the above directions seem unnecessarily stringent, please realize that we are attempting to measure change over time and that we have very few questions on which to base this measurement. The children will take the other forms of this same test at 6 week intervals and then they will repeat the three forms; hopefully each time they will be able to answer the questions more successfully.

Make sure the children mark only one box and that they mark at least one box. Encourage them to use the "puzzled face" by reminding them that this response means "I haven't learned this (how to do this) yet."

Pacing the Test. Try to keep the test moving. Expecially for the number story and algorithm problems it may take a "long" time for the children to figure out an answer. As a rule of thumb, allow the group to work on each question until only one or two children are still working. At that point, if necessary, suggest that anyone still working mark the "puzzled face" box. Then just go on to the next question without waiting longer. The second part of the test, sentence writing, may go slowly. Remind the children not to solve the problem, and again, to use the "puzzled face" when they need to. The third part of the test, the taped basic facts questions is a speed test. Once the tape is started, it will not be stopped.



Preparations for Testing

The children will need two pencils with erasers. They will not need scratch paper for this test, since they may write in the "arrow" space. The children's names have been written on the tests in advance; distribute the tests, making sure each child has his/her own test.

Specific Directions

SAY: Today we are going to do some work with numbers in this booklet. You learned how to do some parts of the work last year in first grade. You will learn how to do more of the work this year in second grade. We don't expect you to know how to do all of the work today. We will come back again and again while you are in second grade . . . each time you will have learned how to do more of the work.

Find your name on the line. Look at the big box with an X in it-you will answer the questions today by making a big X like this one.

EXAMPLE A Now find row A. I am going to ask you a question. You will answer by making a big X in one of the boxes. If you haven't learned about the answer yet, make an X in the last box, the one with a puzzled face. [Pause.]

Which box has a picture of a dime in it? Make an X in the box that has a dime in it. [Pause.] If you haven't learned this yet, make an X in the last box, the one with a puzzled face. [Check to see that the children mark only one box in the row.]

EXAMPLE B Now find row B. Look at the boys and girls in the arrow. Are there more boys, more girls, or the same number ... more boys, more girls, or the same number? Make an X in the box that tells your answer ... if you haven't learned how to answer yet, mark the puzzled face.

Now turn to the next page and fold your booklet.

[Note: Starting with row C, do not assist the children with the test, except to make sure they are marking only one box . . . and at least one box.]

- Find row C. Look at the apples in the arrow. Make an X in the box that tells how many apples there are ... how many apples there are. [Pause.] Remember, if you haven't learned about this yet, mark the puzzled face.
- D Row D. Look at the number in the arrow. Make an X in the box which has that many marbles in it ... that many marbles in it.



- Row E. Look at the number sentence in the arrow. Make an X on the number that will make the sentence true ... the number that will make the sentence true.
- P Row F. Look at the problem in the arrow. Make an X on the answer ... an X on the answer.
- Row G. I am going to read a number story about pencils. I will read the story twice. Listen both times before you mark a box. John had 12 pencils. He gave 7 pencils to Tim. How many pencils did John have left? [Repeat. Allow time for the children to figure out their answers to rows G and H.]
- Row H. This number story is about collections of cans. For this story, you may write on the paper if you want to. Debbie has 32 cans in her collection. Her brother Rob has 56 cans. How many more cans does Bob have than Debbie? [Repeat and give "puzzled face" reminder, if necessary, to move the test along. Also remind them to make an X on their answer, if necessary.]
- Row I. Look at the numbers in the arrow. They are in order from smallest to largest. What number goes on the line ... what number goes on the line?
- J Row J. Look at the number in the arrow. Make an X on the box that has has another name for the number... another name for the number.
- Row K. Look at the number sentences. One of the number sentences tells how to find the answer for this story about cards. After I read the story, make an X on the number sentence that tells how to find the answer. Bill has 4 football cards. He also has 9 baseball cards. How many cards does Bill have altogether? [Rapeat.]
- Row L. This number story is about candies. Make an X on the number sentence that tells how to find the answer. Kathy had 78 candies. She gave 35 candies to Jim. How many candies did Kathy have left? [Repeat.]
- Row M. This number story is about a plant. A plant was 8 cubes tall. It grew some. Now it is 14 cubes tall. How much did it grow? [Repeat.]
- N Row N. This number story is about trees. Mark the number sentence that tells how to find the answer. Mrs. Turner had 67 trees. 29 trees were pine trees and the rest were oak trees. How many trees were oak trees? [Rapeat.]

Turn to the next page.



- Row O. This number story is about bricks. Mr. Brown needs 11 bricks. He has 8 bricks already. How many more bricks should he get? [Repeat.]
- P Row P. This number story is about books. For this story, you may write on the paper if you want to. The library had 54 books about animals. Then the librarian bought 18 more animal books. How many animal books does the library have now? [Repeat, use "puzzled face" and "make an X" reminders as necessary.]
- Row Q. Look at the problem in the arrow. What number is the answer ... what number is the answer? [Mention "puzzled face."]
- R Row R. Look at the problem in the arrow. What number is the answer ... what number is the answer? [Mention "puzzled face."]
- Row S. Look at the picture of the doghouse. We can see some puppies outside the doghouse. 9 puppies are inside the doghouse. We cannot see them. How many puppies are there altogether? ... some puppies are outside ... 9 puppies are inside ... how many puppies are there altogether?
- Row T. We are going to count backwards, starting at 18. When we count backwards one number we get 17. When we count backwards two numbers we get 16. What do we get when we count backwards four numbers from 18... what do we get when we count backwards four numbers from 18?

Turn to the next page.

U Row U. What number is 5 less than 23 ... 5 less than 23?

Now we will do some different work. I will read a number story to you. Then I want you to write a number sentence for the story. You don't need to solve the sentence. Just write the sentence the best you can without solving it. Write it on the line.

- STORY A Joe has 9 whistles. His sister Debra has 15 whistles. How many more whistles does Debra have than Joe? [Repeat.]
- STORY B Mike has 48 red leaves. He also has 26 yellow leaves. How many leaves does Mike have altogether? [Repeat.]
- STORY C Jill has 29 nails. How many more nails does she have to put with them so she has 87 nails altogether? [Repeat.]
- STORY D Jerry had 6 apples. His mother gave him 8 more apples. How many apples did Jerry have altogether? [Repeat.]

 Turn to the last page.



The work on this page is different. I want to see how quickly you can think of the answers for addition and subtraction problems.

I am going to play a tape—the voice on the tape will say problems, like this: [Play the four sample problems 2+8, 5+6, 7+4, 8+3.] The problems will go very quickly, even faster than when you were in first grade. Today you probably will not know very many answers, but when I come back and we do these problems again, you will know more. Don't feel bad if you don't know the answers today.

We will start with the row of boxes at the top of the page—the ones with capital letters A, B, C The voice on the tape will tell you where to write you answers. Do your best to keep up with the voice. Get your pencil ready. [Start tape.]

Script on Tape: Look at the row of boxes at the top of the page. Find box A. I am going to say problems like 5 + 4. The answer for 5 + 4 is 9. So there is a 9 in box A. Find Box B. What is 7 + 1? 7 + 1 is 8. You write an 8 in box B.

[10 second pause; make sure the children are working on the top row.]

Now I am going to say problems for all the rest of the boxes in the top

row. I will not stop, so write your answers quickly. If you can't think of

an answer, just leave the box empty. Ready?

Form R Box C 1+5

Box D 3+2

Box E 4 + 4

Box F 3+6

Box G 4 + 3

Box H 6 + 2

Box I 5 + 8

Box J 6+9

Box K 9 + 3

Box L 5 + 7

Box M 8 + 9

Box N 3 + 8



64

Stop working. You may rest for a moment...then we will work on the bottom row.

[10 second pause]

Ready to listen again? Look at the bottom row of boxes. Find Box A. This time I going to say problems like 9 - 6. The answer for 9 - 6 is 3. So there is a 3 in box A. Find box B. What is 4 - 2? 4 - 2 is 2. You write a 2 in box B.

[10 second pause--make sure the children are in the bottom row.]

Now I am going to say problems for the rest of the boxes. I will not stop, so write your answers quickly. If you can't think of an answer, leave the box empty. Ready?

Form R

Box C 5 - 1

Box D 9 - 2

Box E 8 - 7

Box F 5 - 3

Box G 7 - 6

Box H 8 - 5

Box I 14 - 7

Box J 12 - 5

Box K 11 - 8

Box L 13 - 7

Box. M 12 - 9

Box N 15 - 8

Stop working. Put your pencil down.

[Stop the tape.]

That is all the work we will do today. Remember, we will come again and you will do work like this again. Each time I come, you will be able to do more of the work.



[Collect the booklets.]

Directions for Algorithm Timed Tests

(Distribute the tests, telling the children not to open them yet.)

SAY: Today we are going to do a new kind of math problem. Probably you have not learned how to do these problems yet. Don't worry about that—just do the best you can.

I will say "GO" when you should begin working. Then after a little while I will say "STOP." Please don't start working until I say "GO."

Now turn to the page that says ADD. (Make sure children are on the right page.) Look at the red dotted line. First you will do the problems ABOVE the red line. When I say "GO," do as many problems above the red line as you can before I say "STOP." Don't work below the red line yet.

Ready? "GO!" (Allow 1½ minutes.) "STOP!!" Now we will work on the problems below the red line. Ready? "GO!" (Allow 1½ minutes.) "STOP!!"

"STOP!" That was a very short time, wasn't it?!! You will be learning how to do these problems faster. Now turn to the page that says SUBTRACT.

(Repeat above procedure exactly for the SUBTRACT page.)

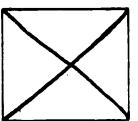
"STOP!" That was fast too, wasn't it? Next time we come, you'll be able to do more. (Collect tests.)

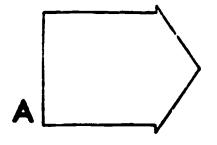


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Name____



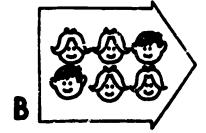










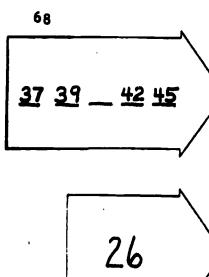












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41



20(10)+6

1 (10) + 16

2(10)+16





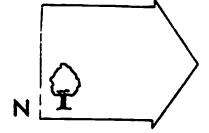




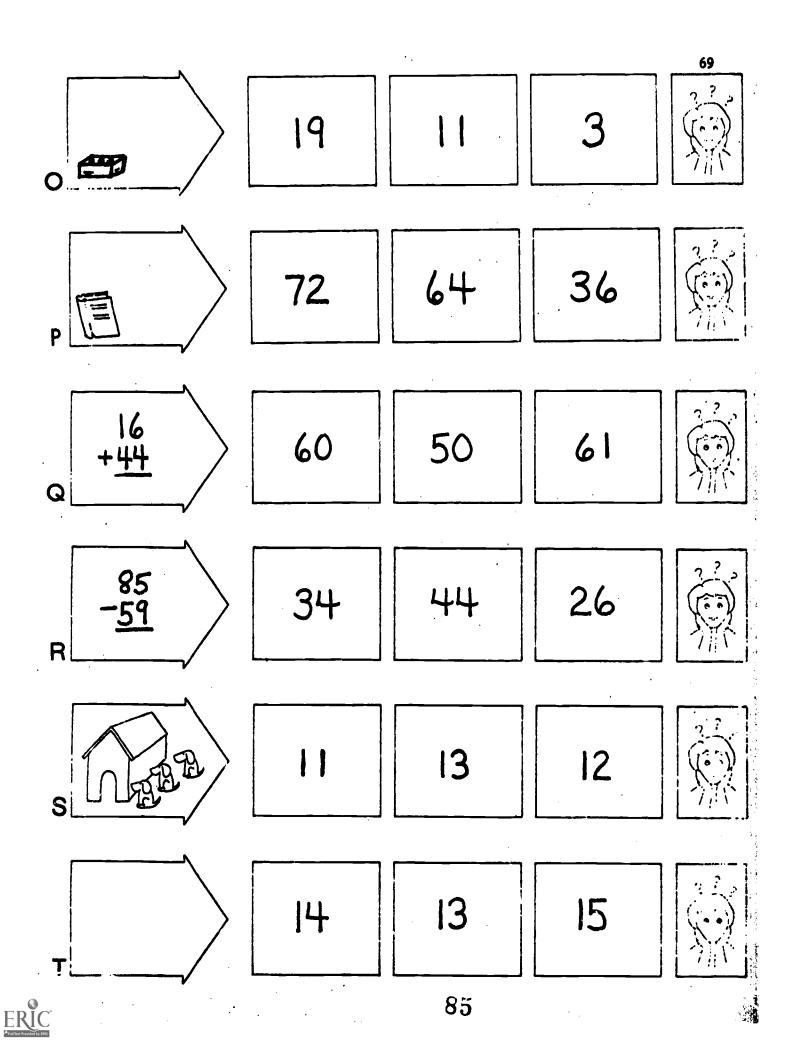












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18



A D

B 🕸

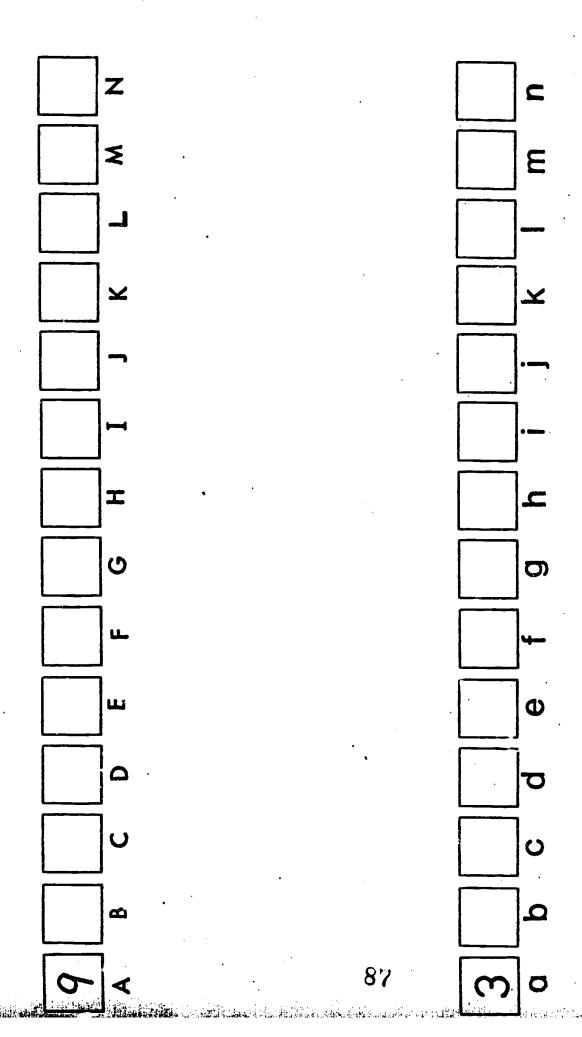
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86

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72 Add

+<u>21</u>

29 +<u>64</u>

+<u>56</u>

722 + 34

263 + <u>459</u>

- 42

72 - <u>28</u>

 $-\frac{32}{5}$

698 - 457

504 -<u>227</u>



Directions for Administering Achievement Monitoring Test S

Coordinated Study #1 & #2

General Directions

Reading the Test. The first part of this test is in multiple choice format and is read aloud to the children. Read the questions exactly as they are printed in the directions; do not paraphrase. Each question is read twice—or the key phrases are repeated after the original question is read. Read the questions at a somewhat slower than conversational pace. The second part of the test involves verbal problems for which the child must write, but not solve, a number sentence. Again, you will read the number story twice. The third part of the test, the basic facts speed test, will be administered via tape.

fince many children will not know how to do the majority of the test, especially at the beginning of the year, they will no doubt want to ask questions or want you to repeat items yet again. Please do not allow this—instead, ask them to answer "as best they can" or to mark the "puzzled face" to show they have "not learned this yet." Note also that reading the answers to the children is not permitted.

Since this is a group-administered test, verbal exchanges with individual children can be distracting and interfering-try to establish a policy of not talking and not allowing the children to talk in between questions.

Should the above directions seem unnecessarily stringent, please realize that we are attempting to measure change over time and that we have very few questions on which to base this measurement. The children will take the other forms of this same test at 6 week intervals and then they will repeat the three forms; hopefully each time they will be able to answer the questions more successfully.

Make sure the children mark only one box and that they mark at least one box. Encourage them to use the "puzzled face" by reminding them that this response means "I haven't learned this (how to do this) yet."

Pacing the Test. Try to keep the test moving. Expecially for the number story and algorithm problems it may take a "long" time for the children to figure out an answer. As a rule of thumb, allow the group to work on each question until only one or two children are still working. At that point, if necessary, suggest that anyone still working mark the "puzzled face" box. Then just go on to the next question without waiting longer. The second part of the test, sentence writing, may go slowly. Remind the children not to solve the problem, and again, to use the "puzzled face" when they need to. The third part of the test, the taped basic facts questions is a speed test. Once the tape is started, it will not be stopped.



Preparations for Testing

The children will need two pencils with erasers. They will not need scratch paper for this test, since they will write in the "arrow" space. The children's names have been written on the tests in advance; distribute the tests, making sure each child has his/her own test.

Specific Directions

SAY: Today we are going to do some work with numbers in this booklet. You learned how to do some parts of the work last year in first grade. You will learn how to do more of the work this; r in second grade. We don't expect you to know how to do all of the work today. We will come back again and again while you are in second grade... each time you will have learned how to do more of the work.

Find your name on the line. Look at the big box with an X in it—you will answer the questions today by making a big X like this one.

EXAMPLE A Now find row A. I am going to ask you a question. You will amswer by making a big X in one of the boxes. If you haven't learned about the answer yet, make an X in the last box, the one with the puzzled face. [Pauss.]

Which box has the tallest flag in it? Make an X on the box with the tallest flag. [Pause.] If you haven't learned about this yet, make an X in the last box, the one with the puzzled face. [Check to see that the children mark only one box in the row.]

EXAMPLE B Find row B. Look at the number in the arrow. Make an X on the box which has that many socks in it ... the box which has that many socks in it. If you haven't learned about this yet, mark the puzzled face.

Now turn to the next page and fold your booklet.

[Note: Starting with row C, do not assist the children with the test, except to make sure they are marking only one box ... and at least one box.]

- Row C. Look at the sticks in the arrow. Make an X on the box that tells how many sticks there are ... the box that tells how many sticks there are. [Pause.] Remember, if you haven't learned about this yet, mark the puzzled face.
- D Row D. Make an X on the box that has 24 cubes in it ... 24 cubes in it.
- Row E. Look at the number sentence in the arrow. Make an X on the number that will make the sentence true ... make an X on the number that will make the sentence true.



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- Row F. Look at the number sentence in the arrow. Make an X on the number that will make the sentence true ... make an X on the number that will make the sentence true.
- Row G. I am going to read a number story about toy airplanes. I will read the story twice. Listen both times before you mark a box. David has 9 toy airplanes. His sister Nancy has 13 toy airplanes. How many more toy airplanes does Nancy have than David? [Repeat. Allow time for the children to figure out their answers to rows G and H.]
- Row H. This number story is about bottle caps. For this story you may write on the paper if you want to. Tom has 24 old bottle caps. He also has 57 new bottle caps. How many bottle caps does Tom have altogether? [Repeat. If necessary, remind the children to "make an X" on their answer. Also, use the "puzzled face" reminder as necessary.]
- I Row I. Which box shows the numbers in order from smallest to largest ... in order from smallest to largest?
- J Row J. Look at the little squares in the arrow. Make an X on the box that tells how many squares there are...how many squares there are.
- Row K. Look at the number sentences. One of the number sentences tells how to find the answer for this story about hats. After I read the story, make an X on the number sentence that tells how to find the answer. Karla had 15 hats. She gave 9 hats to Steve. How many hats did Karla have left? [Repeat.]
- Row L. This number story is about stickers. Make an X on the number sentence that tells how to find the answer. Sarah has 28 stickers. Her brother Ricky has 34 stickers. How many more stickers does Ricky have than Sarah? [Repeat.]
- Row M. This number story is about things to drink. There are 11 glasses on the table. 5 have orange juice in them. The rest have milk in them. How many glasses have milk in them? [Repeat.]
- N Row N. This number story is about children swimming. There were 46 children swimming in the pool. 27 more children jumped into the pool. How many children were in the pool then? [Repeat.]

Turn to the next page.



- Row 0. This number story is about shells. 17 shells are in a box. Some shells are little. 8 are big. How many little shells are in the box? [Repeat.]
- Row P. This number story is about soccer. For this story you may write on the paper if you want to. There were some soccer players on the field. 23 more players came. Now there are 35 players on the field. How many players were on the field at first? [Repeat. Use "puzzled face" and "make an X" reminders as necessary.]
- Q Look at the problem in the arrow. What number is the answer ... what number is the answer? [Mention "puzzled face."]
- R Look at the problem in the arrow. What number is the answer ... what number is the answer? [Mention "puzzled face."]
- Row S. We are going to count up from the number 12. When we count up one number from 12 we get 13. When we count up two numbers from 12 we get 14. What do we get when we count up five numbers from 12... what do we get when we count up five numbers from 12?
- Row T. Look at the garage and the cars. There are 15 cars altogether. We can see some cars outside the garage. The rest are inside the garage. How many cars are inside the garage? There are 15 cars altogether ... some are outside ... the rest are inside ... how many are inside?

Turn to the next page.

V Row U. I am going to tell you about some numbers ... listen ... 24 comes 1 number after 23 ... 25 comes 2 numbers after 23 ... what number comes 6 numbers after 23 ... what number comes 6 numbers after 23?

Now we will do some different work. I will read a number story to you. Then I want you to write a number sentence for the story. You don't need to solve the sentence. Just write the sentence the best you can without solving it. Write it on the line.

- STORY A Judy has 4 chocolate cupcakes. She also has 7 white cupcakes. How many cupcakes does Judy have altogether? [Repeat.]
- STORY B Steve had 65 pennics. He gave 36 of them to Laura. How many pennies did Steve have left? [Repeat.]
- STORY c There are 86 marbles in a jar. 54 are big and the rest are little. How many little marbles are in the jar? [Repeat.]
- STORY D Adam has 7 puzzles. How many more puzzles does he have to put with them so he has 12 puzzles altogether? [Repeat.]

Turn to the last page.

78 The work on this page is different. I want to see how quickly you can think of the answers for addition and subtraction problems.

I am going to play a tape—the voice on the tape will say problems, like this: [Play the four sample problems 2+8, 5+6, 7+4, 8+3.] The problems will go very quickly, even faster than when you were in first grade. Today you probably will not know very many answers, but when I come back and we do these problems again, you will know more. Don't feel bad if you don't know the answers today.

We will start with the row of boxes at the top of the page—the ones with capital letters A, B, C The voice on the tape will tell you where to write your answers. Do your best to kee, up with the voice. Get your pencil ready. [Start tape.]

Script on Tape: Look at the row of boxes at the top of the page. Find box

A. I am going to say problems like 5 + 4. The answer for 5 + 4 is 9.

So there is a 9 in box A. Find Box B. What is 7 + 1? 7 + 1 is 8. You write an 8 in box B.

[10 second pause; make sure the children are working on the top row.]

Now I am going to say problems for all the rest of the boxes in the top

row. I will not stop, so write your answers quickly. If you can't think of

an answer, just leave the box empty. Ready?

Form S	Box C	3 + 1
	Box D	2 + 5
	Box E	1 + 6
	lox F	7 + 2
•	Вож С	2 + 6
	Box H	3 + 5
	Box I	4 + 8
•	Box J	3 + 7
	Box K	5 + 9
	Box L	6 + 8
	Box M	8 + 7
	Box N	4 + 9

S

Stop working. You may rest for a moment...then we will work on the bottom row.

[10 second pause]

Ready to listen again? Look at the bottom row of boxes. Find Box A. This time I am going to say problems like 9 - 6. The answer for 9 - 6 is 3. So there is a 3 in box A. Find box B. What is 4 - 2? 4 - 2 is 2. You write a 2 in box B.

[10 second pause--make sure the children are in the bottom row.]

Now I am going to say problems for the rest of the boxes. I will not stop,
so write your answers quickly. If you can't think of an answer, leave the
box empty. Ready?

Form S

Box C 7 - 1

Box D 8 - 4

Box E 9 - 5

Box F 7 - 4

Box G 8 - 6

Box H 4 - 3

Box I 11 - 2

Box J 13 - 8

Box K 12 - 7

Box L 15 - 9

Box M 10 - 2

Box N 16 - 7

Stop working. Put your pencil down.

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[Stop the tape,]

That is all the work we will do today. Remember, we will come again and you will do work like this again. Each time I come, you will be able to do more of the work.

Directions for Algorithm Timed Tests

Distribute the tests, telling the children not to open them yet.)

SAY: Today we are going to do a new kind of math problem. Probably you have not learned how to do these problems yet. Don't worry about that--just do the best you can.

I will say "GO" when you should begin working. Then after a little while I will say "STOP." Please don't start working until I say "GO."

Now turn to the page that says ADD. (Make sure children are on the right page.) Look at the red dotted line. First you will do the problems ABOVE the red line. When I say "GO," do as many problems above the red line as you can before I say "STOP." Don't work below the red line yet.

Ready? "GO!" (Allow 1½ minutes.) "STOP!!" Now we will work on the problems below the red line. Ready? "GO!" (Allow 1½ minutes.) "STOP!!"

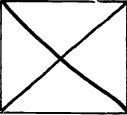
"STOP!" That was a very short time, wasn't it?!! You will be learning how to do these problems faster. Now turn to the page that says SUBTRACT.

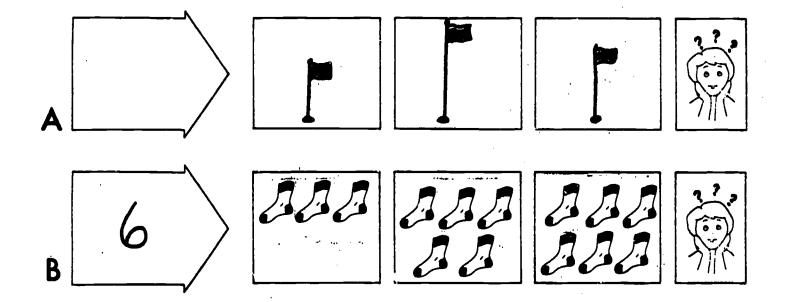
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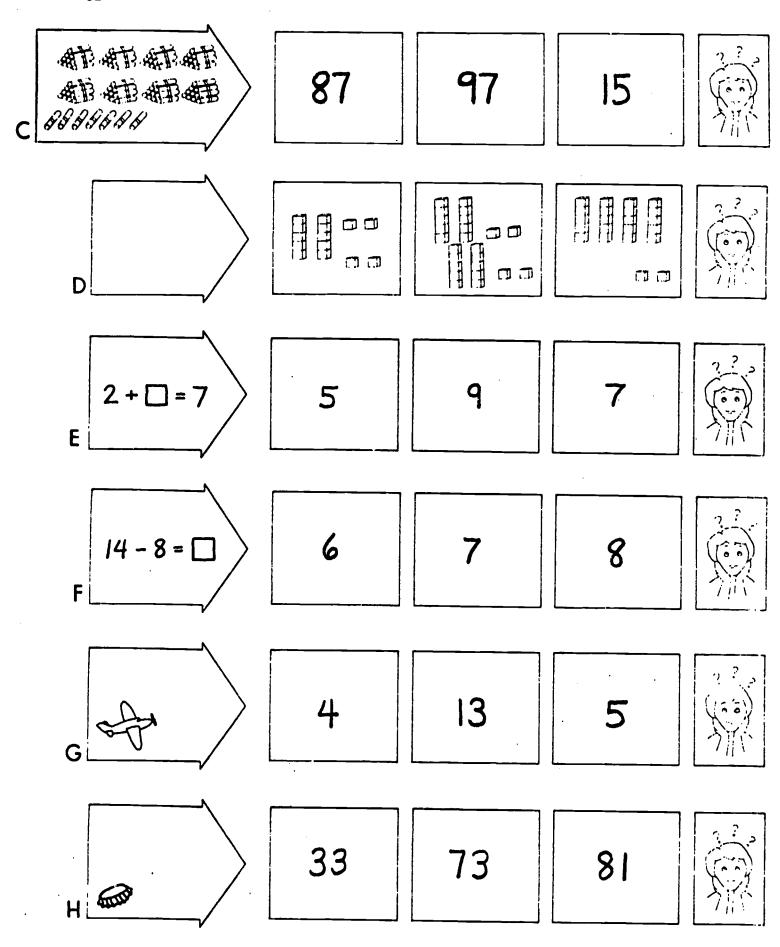
"STOP!" That was fast too, wasn't it? Next time we come, you'll be able to do more. (Collect tests.)



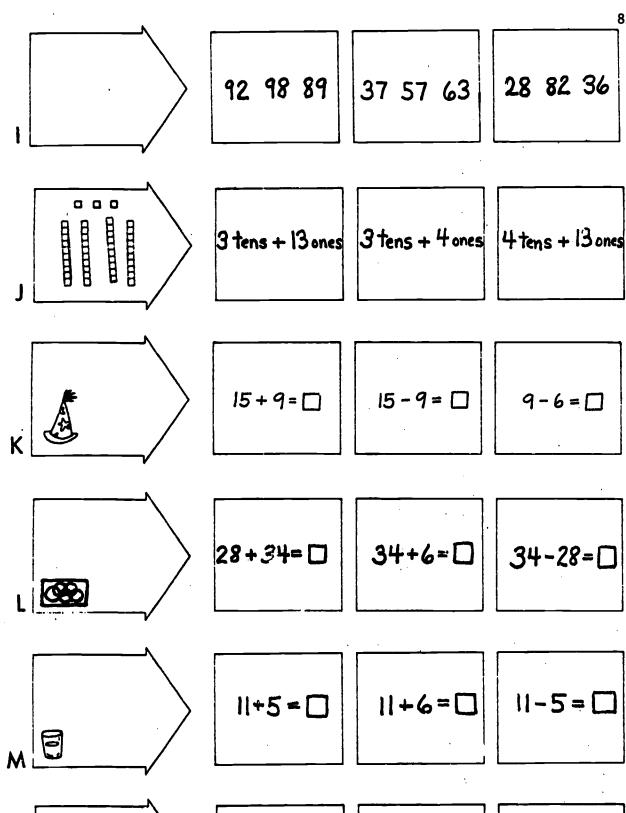
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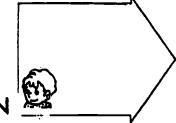






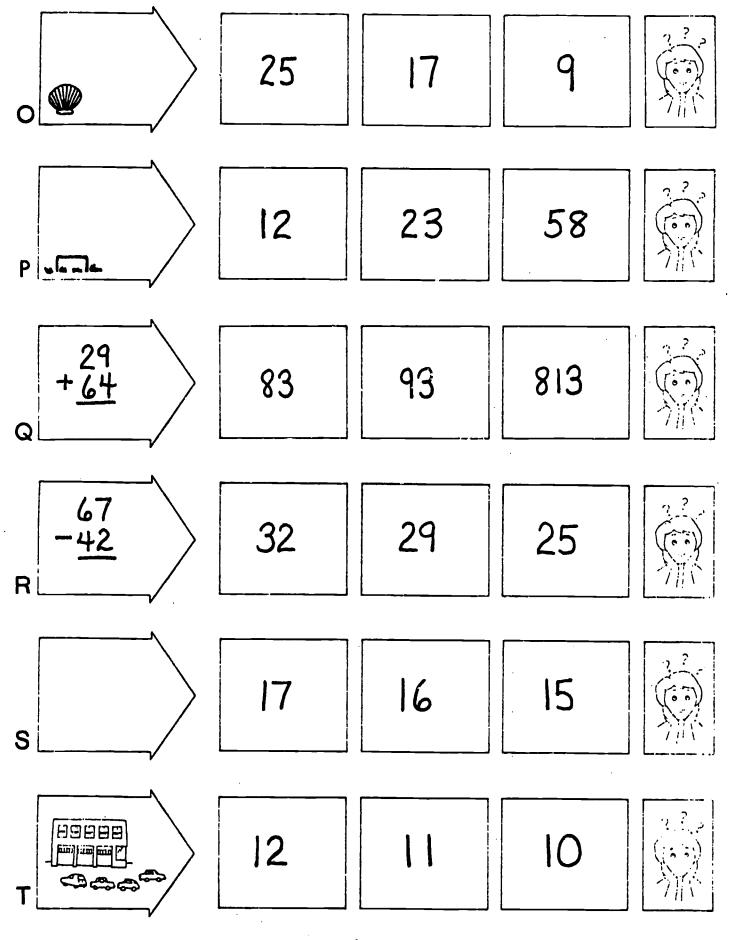


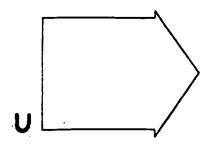












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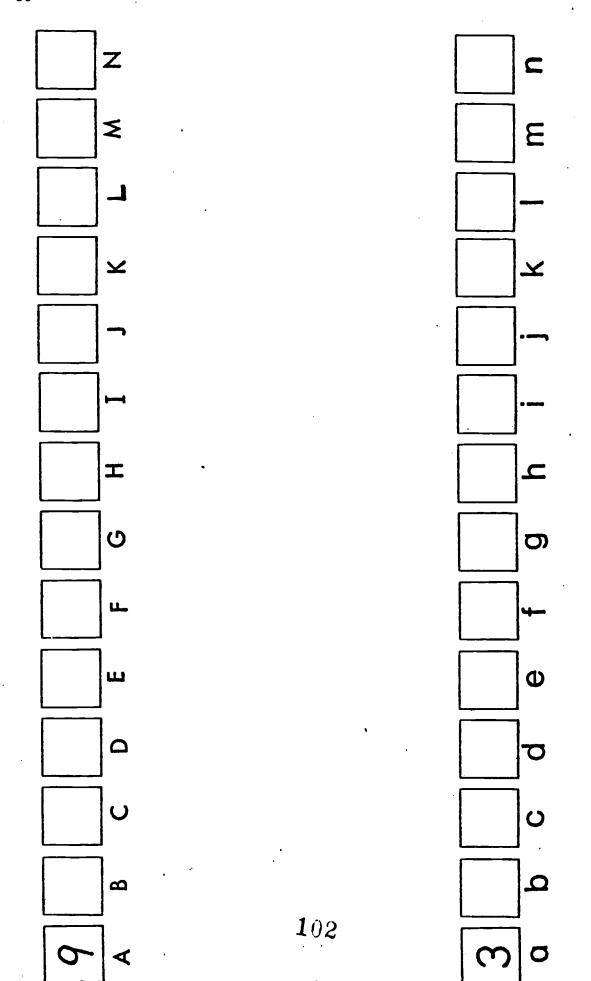
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Directions for Administering Achievement Monitoring Test T

Coordinated Study #1 & #2

General Directions

Reading the Test. The first part of this test is in multiple choice format and is read aloud to the children. Read the questions exactly as they are printed in the directions; do not paraphrase. Each question is read twice—or the key phrases are repeated after the original question is read. Read the questions at a somewhat slower than conversational pace. The second part of the test involves verbal problems for which the child must write, but not solve, a number sentence. Again, you will read the number story twice. The third part of the test, the basic facts speed test, will be administered via tape.

Since many children will not know how to do the majority of the test, expecially at the beginning of the year, they will no doubt want to ask questions or want you to repeat items yet again. Please do not allow this--instead, ask them to answer "as best they can" or to mark the "puzzled face" to show they have "not learned this yet." Note also that reading the answers to the children is not permitted.

Since this is a group-administered test, verbal exchanges with individual children can be distracting and interfering-try to establish a policy of not talking and not allowing the children to talk in between questions.

Should the above directions seem unnecessarily stringent, please realize that we are attempting to measure change over time and that we have very few questions on which to base this measurement. The children will take the other forms of this same test at 6 week intervals and then they will repeat the three forms; hopefully each time they will be able to answer the questions more successfully.

Make sure the children mark only one box and that they mark at least one box. Encourage them to use the "puzzled face" by reminding them that this response means "I haven't learned this (how to do this) yet."

Pacing the Test. Try to keep the test moving. Expecially for the number story and algorithm problems it may take a "long" time for the children to figure out an answer. As a rule of thumb, allow the group to work on each question until only one or two children are still working. At that point, if necessary, suggest that anyone still working mark the "puzzled face" box. Then just go on to the next question without waiting donger. The second part of the test, sentence writing, may go slowly. Remind the children not to solve the problem, and again, to use the "puzzled face" when they need to. The third part of the test, the taped basic facts questions is a speed test. Once the tape is started, it will not be stopped.



Preparation for Testing

The children will need two pencils with erasers. They will not need scratch paper for this test, since they may write in the "arrow" space. The children's names have been written on the tests in advance; distribute the tests, making sure each child has his/her own test.

Specific Directions

SAY: Today we are going to do some work with numbers in this booklet. You learned how to do some parts of the work last year in first grade. You will learn how to do more of the work this year in second grade. We don't expect you to know how to do all of the work today. We will come back again and again while you are in second grade ... each time you will have learned how to do more of the work.

Find your name on the line. Look at the big box with an X in it—you will answer the questions today by making a big X like this one.

EXAMPLE A Now find row A. I am going to ask you a question. You will answer by making a big X in one of the boxes. If you haven't learned about the answer yet, make an X in the last box, the one with the puzzled face. [Pause.]

Which box has the most sailboats in it? Make an X in the box with the most sailboats in it. [Pause.] If you haven't learned about this yet, make an X in the last box, the one with the puzzled face. [Check to see that the children mark only one box in the row.]

EXAMPLE B Find Row B. Look at the trucks in the arrow. Make an X on the box that tells how many trucks there are ... how many trucks there are. [Pause.] Remember, if you haven't learned about this yet, mark the puzzled face.

Now turn to the next page and fold your booklet.

[Note: Starting with row C, do not assist the children with the test except to make sure they are marking only one box and at least one box.]

- C Row C. Make an X on the box that has a seventy-four in it ... make an X on the box that has a seventy-four in it. [Pause.] If you haven't learned about this yet, mark the puzzled face.
- D Row D. Look at the number in the arrow. Make an X on the box that has that many stars in it ... make an X on the box that has that many stars in it.
- E Row E. Look at the problem in the arrow. What number is the answer ... what number is the answer?



- Row F. Look at the number sentence in the arrow. Make an X on the number that will make the sentence true ... make an X on the number that will make the sentence true.
- Row G. I am going to read a number story about fish. I will read the story twice. Listen both times before you mark a box. Judy has 6 little fish. She also has 9 big fish. How many fish does Judy have altogether? [Repeat. Allow time for the children to figure out their answers to rows G and H.]
- Row H. This number story is about comics. For this story, you may write on the paper if you want to. Paul had 43 comics. He gave 28 comics to Carol. How many comics did Paul have left? [Repeat and give "puzzled face" reminder if necessary to move the test along. You also might need to remind children to "make an X" on their answer.]
- I Row I. Look at the three purses. Which purse has the <u>least</u> amount of money in it ... the <u>least</u> amount of money?
- J Row J. Look at the numbers in the arrow. Make an X on the box that means the <u>same</u> as the numbers in the arrow...that means the <u>same</u> as the numbers in the arrow.
- Row K. Look at the number sentences. One of the number sentences tells how to find the answer for this story about keys. After I read the story, make an X on the number sentence that tells how to find the answer. Sally has 8 keys. Her brother Mike has 14 keys. How many more keys does Mike have than Sally? [Repeat.]
- Row L. This number story is about beads. After I read the story, make an X on the number sentence that tells how to find the answer. Jack has 16 red beads. He also has 56 green beads. How many beads does Jack have altogether? [Repeat.]
- Row M. This number story is about links. Mark the number sentence that tells how to find the answer. Patty made a chain of links. She used 3 links first. Then she used 8 more links. How many links long is her chain? [Repeat.]
 - N Row N. This number story is about marbles. On Tuesday Melinda won 31 marbles. On Wednesday she won some more marbles. She won 64 marbles altogether. How many marbles did she win on Wednesday? [Repeat.]

Turn to the next page.

Row O. This number story is about tickets. First Julie bought 7 tickets to ride on the roller coaster. Then she bought 4 more tickets to ride on the ferris wheel. How many tickets did Julie buy? [Repeat.]



- P Row P. This story is about a dog's leash. For this story you may write on the paper if you want to. The dog's leash is 75 links long. A part of the leash 47 links long is around a tree. The rest of the leash is not. How long is the part that is not around a tree? [Repeat. Remind about "puzzled face" and "make an X on answer" as necessary.]
- Row Q. Look at the problem in the arrow. What number is the answer ... what number is the answer? [Mention "write on paper" reminder]
- R Row R. Look at the problem in the arrow. What number is the answer ... what number is the answer?
- S Row S. I am going to tell you about some numbers ... listen ... 16 comes one number before 17. 15 comes two numbers before 17. What number comes 5 numbers before 17 ... 5 numbers before 17?
- T Row T. What number is 3 more than 28 ... 3 more than 28?

 Turn to the next page.
- V Row U. Look at the picture in the arrow. Mr. Smith wants to buy 14 oranges. He has put 9 oranges in the cart already. They are on the bottom of the cart -- you cannot see them. How many more oranges does he need? [Pause.] Mr. Smith wants 14 oranges. He has 9 oranges in the cart. How many more oranges does he need?

Now we will do some different work. I will read a number story to you. Then I want you to write a number sentence for the story. You don't need to solve the sentence. Just write the sentence the best you can without solving it. Write it on the line.

- STORY A Jenny had 13 balloons. She gave 9 balloons to Ben. How many balloons did Jenny have left? [Repeat.]
- STORY B Mark has 16 crayons. His sister Pam has 58 crayons. How many more crayons does Pam have than Mark? [Repeat.]
- STORY C Jean had 26 bottle caps. Her mother gave her 37 more bottle caps. How many bottle caps did Jean have altogether? [Repeat.]
- STORY D There are 11 trucks in the sandbox. 8 are big and the rest are little. How many little trucks are in the sandbox? [Repeat.]

Turn to the last page.



The work on this page is different. I want to see how quickly you can think of the answers for addition and subtraction problems.

I am going to play a tape-the voice on the tape will say problems, like this: [Play the four sample problems 2 + 8, 5 + 6, 7 + 4, 8 + 3.] The problems will go very quickly, even faster than when you were in first grade. Today you probably will not know very many answers, but when I come back and we do these problems again, you will know more. Don't feel bad if you don't know the answers today.

We will start with the row of boxes at the top of the page—the ones with capital letters A, B, C The voice on the tape will tell you where to write your answers. Do your best to keep up with the voice. Get your pencil ready. [Start tape.]

Script on Tape: Look at the row of boxes at the top of the page. Find box A. I am going to say problems like 5 + 4. The answer for 5 + 4 is 9. So there is a 9 in box A. Find Box B. What is 7 + 1? 7 + 1 is 8. You write an 8 in box B.

[10 second pause; make sure the children are working on the top row.]

Now I am going to say problems for all the rest of the boxes in the top

row. I will not stop, so write answers quickly. If you can't think of

an answer, just leave the box empty. Ready?

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Stop working. You may rest for a moment...then we will work on the bottom row.

[10 second pause]

Ready to listen again? Look at the bottom row of boxes. Find Box A. This time I am going to say problems like 9 - 6. The answer for 9 - 6 is 3. So there is a 3 in box A. Find box B. What is 4 - 2? 4 - 2 is 2. You write a 2 in box B.

[10 second pause--make sure the children are in the bottom row.]

Now I am going to say problems for the rest of the boxes. I will not stop,
so write your answers quickly. If you can't think of an answer, leave the

box empty. Ready?

Form T Box C 3-2

Box D 6 - 4

Box E 9 - 1

Box F 7 - 3

Box G 6 - 1

Box H 7 - 5

Box I 10 - 4

Box J 13 - 9

Box K 14 - 8

Box L 11 - 7

Box M 12 - 4

Box N 17 - 9

Stop working. Put your pencil down.

[Stop the tape.]

That is all the work we will do today. Remember, we will come again and you will do work like this again. Each time I come, you will be able to do more of the work.

[Collect the booklets.]



Directions for Algorithm Timed Texts

Distribute the tests, telling the children not to open them yet.)

SAY: Today we are going to do a new kind of math problem. Probably you have not learned how to do these problems yet. Don't worry about that--just do the best you can.

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Now turn to the page that says ADD. (Make sure children are on the right page.) Look at the red dotted line. First you will do the problems ABOVE the red line. When I say "GO," do as many problems above the red line as you can before I say "STOP." Don't work below the red line yet.

Ready? "GO!" (Allow 1½ minutes.) "STOP!!" Now we will work on the problems below the red line. Ready? "GO!" (Allow 1½ minutes.) "STOP!!"

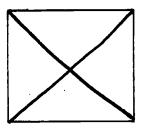
"STOP!" That was a very short time, wasn't it?!! You will be learning how to do these problems faster. Now turn to the page that says SUBTRACT.

(Repeat above procedure exactly for the SUBTRACT page.)

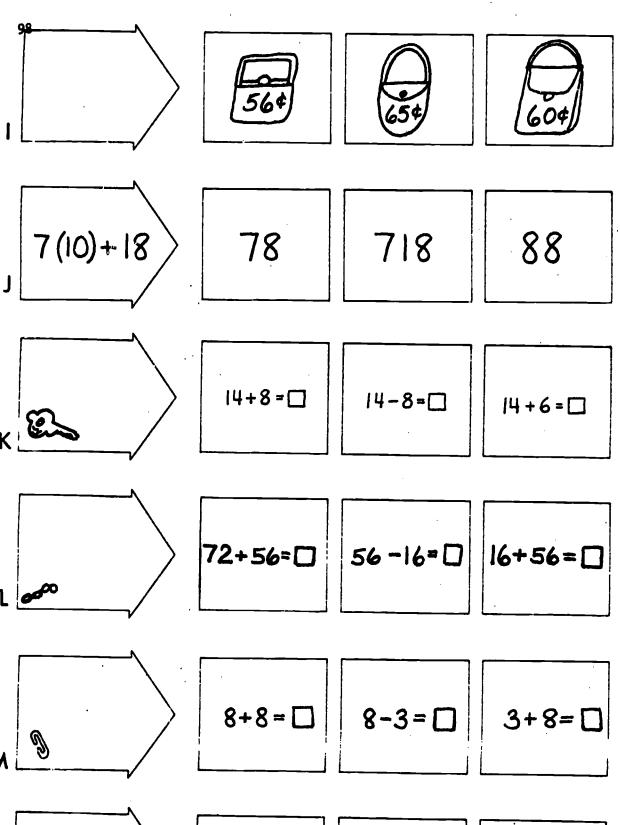
"STOP!" That was fast too, wasn't it? Next time we come, you'll be able to do more. (Collect tests.)

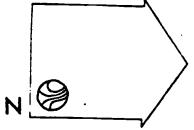


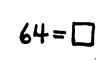
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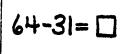


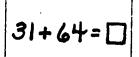
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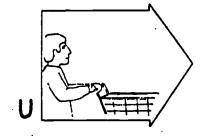


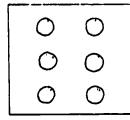


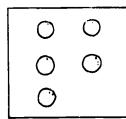


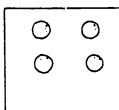


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Appendix B ITEM STATISTICS FOR FORMS R, S, T FOR THE TOTAL POPULATION



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0	0	0 12	.0 40.0 53.3	.00 -,37	.00 29			12.00	.00 27.92	Sentence Writing (B)
<u> </u>		10	3,3	01		+,02	-,46	13.00	23.00	Subt-part part whole-adder 0-99

ERIC **

LERTAP 2.0					SUMMA	RY ITEN	STATIST	1CS	,	i i ku ma <mark>nga upagara</mark>	PAGE 34
TEST NO 1 ACH.	HOTELT	R, 4R=1'0P	····	·	······	- <u>-</u>		- SUBTES	T GENE	KAD OBJECTIVE	110
TTER NURBER 13					CUEFF1	Cients-	OF-CURRE	LATIUN -	·	MEANS	5
OPIIuN	WŢ	N	P		P8-8T	PB-TT	B=\$T	B-TT	ST	TT	
0	0	0 2	.0 6.7		,00	.00	.00	.00	,00 13,50	31.50	į ·
C 3	1 0	26 2	86.7 6.7	C	02 01	-,10 -,11	-,04 -,02	.21	C 13.08	30,27 33,50	Problem Solving (B) Subt-join-addend 11-15
TOTAL	V	30	.0		,00	;00			,00	,00	
ITEM NUMBER 14						, , , , , , , , , , , , , , , , , , ,	OF CORRE			MEANS	
0 	0	0	.0		,00 ,71	.00	.00	,00 .00	,00 .00		
2 3	0	2 3	6.7 10.0		51 06	•.53	-,99 -,10	-1.02	8,50 12,67	16.00 29.67	Problem Solving (B) Add-simple joining 0-99
5 Tutal	Ö	30	.0		,00	.00	.00	.00	.00		
ITEM NUMBER 15			÷		COEFFI	CIENTS	OF CORRE	LATION		NEANS	
HOLTEC	·WT	K	p		PB-ST		B-5T	B-TT	ST		
C !	1 0	19	63,3 16,7	C	.00 .41 -,21	.51 -,19	•,31	,65 • .29	*C 13,84	33,42 3 27,40	Algorithms
4 5 10146	0	3	10.0		-,52 ,00	-,49 -,49	-,89 ,00	•.84 •00	14,00 9,33 ,00	19,67	Addition Algorithm —
										WEARS	
127 OPTION	u T	N	P	,	PB-ST	PR-TT	8-81	8=TT	ST	TT	128
0	0	9	30.0	- , 3	.00	. 36	.12	.48	13,44	34,67	A second
C 3	1 0	5 12	 13.3- 16.7 40.0	C	,02 ,06 •,15	.00 -,29	.08 -,19	.00	13,25 C 13,40 12,67	· 30,60	Algorithms
ERIC TOTAL	•	30	- ,0 -		.00			- 100			

LERTAP 2.0			. 7.	BUNN	ry itek	STATIST	108	The state of the s	in the second		PAGE 35	
<u> </u>	HONE	TR, 48=P	0 P	·		· <u></u>	SUBTER	IT 1 CENE	RAL OBJEC	FIVES		
- F1 - P26NUA H3TI				- COEFF:	icients	of Corne	LATION-		HEANS	·		
OPTION	wT	N	P	PH-ST	PB-TT	8-8T	B-TT	ST.	TT			
0	0	0	3,3	.00 32	.00 =, 37	.00 -,77	.00 89	,00 9,00	16.00	· ;		
C 3	1 0	26	86.7 .0	C ,55	.56	,84	.86	C 13,62	32.19		Counting On 9-18	***
TOTAL		30	 -√V-					····································				
ITEM NUMBER 18		e: • • •				OF CORRE	A. A.	A house	MEANS			
0	 147 0	0	.0	,00 C 34	70 04	.00	.00	,00 13.59	,00		All the second s	
2	0	3	10.0	. 38	,22 ,27 ,27	, 21 •, 66			35,33 24,67		Counting Back 9-18	-
5 Total	0	0	,0	,00	· · · ·	.00	,00				•	
ITEM NUMBER 19	7		en de la companya de	Coeff	icients	OF CORRE	LATION		Heans.			
OPTION	hT	N	P	PB-8T	PB-II	B-51	B=7T	87	77		COMPANY OF THE PARTY OF THE PAR	
1 2	0	2 4	6,7 13,3 73,3	00 18 22	.05	34 35	,10 ,10	00 11.50 11.75			Counting Back 18-31	:
4 5 	0	2 0	6.7	•,40 ,00		-,77 -,00	-,91 ,00	9,50		MANA CONTRA		-
				- S. Marie					Section 1			
											,	

ENTAP 2.U			+		SUMMA	RY ITEM	STATIST	108			PAGE 37
' 261 119 1 ACH	- 10h [†1	1,-4x-48	}					- SUB ¥66	5 7-2	NCE WRITING	FREE RESPONSE -
,						,					
TEH AUABER 1		· · · · · · · · · · · · · · · · · · ·			-C UŁFFI	CIENTS (OF CORKE	lati un-		EANS	ITEM DESCRIPTIONS
OPTION	ψŢ	N	P		P8-8T	PB-TT	8-ST	B-77	ST	TT	
0	0	0	.0		.00	.00	.00	.00	,00	•00	
C 1	0	11 	36,7 63,3	C 	.78 	.34	.99	.43		33,82	Sentence Writing Subt-comparison 11-15
TOTAL	•	30	4411		-170	-101	-177			28,60	
TEH NUMBER 2			·	***************************************	CUEFFI	CIENTS (OF CURRE	LATTON	· u	Fine	
- JPTIJN-	T	,,	•							EANS	
V13.000	77.				 PB-6T	-PR-71		<u> </u>			
0	0	0	0	A	.00	.00	.00		,00	.00	Company that t
2	Ü	4	86,7 - 13,3				-,91	-,92	-C - 3,73 1,00	19,25	Sentence Writing Add-part part whole 0-99
TOTAL		30				·				,	
TEM HUMBER 3					COEFFI	CIENTS (of Corke	LATION	.	EANS	Torrigen is a subsection of the subsection of th
OPTION	Ţ	N	P	·		P8-TT	B-5T	B-TT	ST	11	New York
	 -				00_	^^n		 .00.			
C 1	1	9	30,0		. 82	.46	1.08	. 61,	C 3,78	35,78	Sentence Writing
TOTAL	· · ·	21 	70.0		82	-,46	-1,07	•.61	1,95	28,33	Subt-join-addend 0-99
	,										·
TEN NUMBER 4		· · · · · · · · · · · · · · · · · · ·	•		- COEFF1	CIENTS (F. CDRRE	LATION	·	RANG	
OPTION	at	H	p		B0 - 0 T	AR BU		2,40 3,40 3,40 1,10 1,10 1,10 1,10 1,10 1,10 1,10 1	A CONTRACTOR OF THE PARTY OF TH		A statement and
	7 /	16	· · ·	,	LD-01	PB-TT	B-ST	8-11	81	TT	or No. 1. S.
0 C 1	. 1	0 29	.0 96.7	r	.00	.00	.00	.00	.00	.00	 Sentence Writing
L .	-	• /	701/	٠	,45	,19	.87	.37		30.83	Add-adm-1- t-t-t - s- s-
TOTAL	0	30	},}			- 444 -	-1.10	,46_	00_	23.00	Add-simple joining 11-15

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ADMINISTRATION TIME: 84

GERTAP 2.0				. SUHNA	RY ITEM	STÁTIST:	IC8			PAGE 39	·
TEST NO 1 ACH	- Honit a	1, 48=20	 	<u>, , , , , , , , , , , , , , , , , , , </u>		,	Surtes	T) FACT	6 876601 00	!TION	<u>. </u>
. ITEM NUMBER 1				- Goeffi	CLENTS-C)F Corhe i	LATION -		HEANS	ITEM DESCRIPTIONS	سنسو
OPTION	WT	N	P	PB-ST	P8-TT	8 - 57	B-TT		TT		
C 1	0	30	100.0	C .00	.00	.00	.00	.00 C 7,83		1+5	-
TOTAL		30		100							
ITEM NUMBER 2				COEFFI	CIENTS (F CORRE	LATION		MEANS		
	#1	N					<u> Bo∓</u> T	ST.	ng distriction of the same	in the same of	
0	0	2	6.7	-,67	•.58 .50	-1,29	-1,12		14,50		
Ž TOTAL	Ö	0 30	.0	,00	,00	,00	,00	.00	00	3 + 2	
ITEM NUMBER 3	,			COEFFI	CIENTS ()F CORRE	LATION		HEANS		
Prolife	WT	N	P	PB-ST	PB-TT	B-8T	B-TT	8T	TT		
0 C 1 2 707aC	100	29 1	96.7	00 C •,17	00 ,01	00 • 31 • 42	.00	00 7,76 6 0,00	70, 59 30, 00	4+4	
TTEN JUNBER 4				COEFF	CTENTS I	ne Corre	LATTON		NFANG		
POTTON	T b	N	P		P8-11	8-81			11		
C 1	0 1 0	25 ————————————————————————————————————	13,3 83,3	-,56 C ,74	•,58 •,74	-,89 1,08	91 1.08	4.50 C 8.60 2.00		3 + 6	
TOTAL		30									,
ITEM NUMBER 5		<u> </u>		COEFFI	CIENTS (OF CORRE	LATION		MEANS		
OPTION		<u> </u>	P	PR-ST.	PA-TT	B=8T	H-TT	ST	TT	2028-100-201-4-10-5	
0 	0	4	13,3	•,48	•,34	•,75	• .53	5,00	28.2		
TOTAL	0	30	13,3	-,22	-,24	•,36	-,38	6,50		4 + 3	3

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LERTAP 2.0				SUNN	ARY ITEM	STATIST	108			1	PAGE 40	
TEST HIT I ACH	, AUNIT	K, 4K=PO	}				Burtes	- 3 - P I	ICT8	SPERD - ADDIT	TON	
TTEN NUMBER 6		······································		CUEFF	l ettura.	OF CORRE	hitinu -			****		114
UPTIUN	uŤ	N	, p					,		LANS		
0	^_		··		PB-TT	9-82	8-11		T	77		
Ci	i	26	13.3 86.7 (,56	-1,02	89 .86		00 42	20,00 32,19	6 + 2	
TUTAL	V	30	10	700	,00	.00	•00	, (00-	100		***************************************
ITEN NUMBER 7				COEFF	CIENTS	OF CORRE	LATION	· ·	M	IANS	.	
OPILON	w)		-	- PB=81	18-11	8-81	8-27		11	71		····
h	0	18	60.0	-,61	-,48	78	-,61	1	67	27,67		
5		12	+0.0 (.00	.40	.00	.00	c 9 ,	50	- 34,92	5 + 8	į.
. TOTAL		30						<u>'</u>	1			
ITEN MUNBER A			•	Coeff	CIENTS (of Corre	LATION		M	CANS	**************************************	
OPTION	WT	N	p		PB-77		B-T7		T	77		
Cl	1	 21 -	70.0 26.7 (-,36	-168	-148-	grand J e	05	20,01		
2 19146	0	1	3.3	.17	.01	-168 163 142	,03	10 m	00	31.00	6 + 9	•
1		••				1				,		
ISEN NUMBER 9			·	CUEFF	CIENTS-	o r corre	HTTON	· Pate.	H	IANG		
OPTION	WT	N	Р '	PB-ST	PB=77	8-81	8-77	1	T	11		
0 C 1	0	5 23	16.7 76.7 (•,31	•,30	-,47	-,45		20	25,60		
TOTAL	<u> </u>	30		-,54	•50 •140	.74 185	.69 77	C 8, - 2 82 €	52 00 —	32,61 19,50	9 + 3	
						enter Garage				•		
ITEN NUMBER 10				COELLI		OF CORRE	LATION		ME	ANS		h
135					79-77	- 8-67	-B-77		1-	- ** -		136
0	0	20	66,7	-,51	-,44	•,66	•,58	7.	00	20.25		
2	0	3	 26,7 - 0 6,7	-,59-	,50	-,10	67	1 0,	12 00	36,62 29,50	5 + 7	
TOTAL		30			Vi	No. A.	. 17 0.1-			4 · 4 · 4		<u> </u>
ERIC.							ni la					,
Full Yest Provided by ERIC	<u></u>					antial XXII	D. Sale		然 沙		SALES CONTRACTOR OF THE SALES	

LERTAP 2.0	•			AMMUE	RY -ITEN	STATIST	108	-,,		τ. · · · · · · · · · · · · · · · · · · ·	PAGE 41
TEST HR 1 ACH.	-HOH198	, 48-808					-SUBTES	1 -) -	FACTS-	1100403898-	TION
- 175H-4UHHER - 11-	110 days (2000)		* <u>'</u>	COEFF1	CLENTS-(o f Corre	LATION			1445	
option	· #T	N	p	P8=81	PB-TT	H-81	8-TT		18	TT	i
0 0 1	0	18	60.0 26.7	,41 C ,46	48 .60	•,52	-,61 ,80	Ç	7,06	27.67 37.87	8 + 9
TOTAL	,	30	3313	-101				47,			_
ITEM NUMBER 12			,	COEFFI	CIENTS (OF CORRE	LATION		M	Cans	4
76110#	-+1	₩ .			PB-77	9-51	B-77	11.7	ST	131.9	
. 0	0	13	43,3	-,49	-,37	=,61	-,46		6,54	27.46	3+8 -
2 Total	0	1 30 ·	3,3	07	. 04	-,16	.09		7,00	32,00	J T U -
										4.50	
				,						,	

LERTAP 2.0				Summa	ry Iten	STATIST	IČ8				PAGE 4	3
TEST 113 1 - 1011	- +0+17 1	R, 4x=1/1/	P				SUPTE	74-	- PACTS	67660848 7	RACTION	<u> </u>
TTCH NUMBER 1				- Cueff i	GIENTS (F CURRE	LATION			ANS	- ITEM DESCRIPTIONS	116
POITGO	#1	N	p	P6=5T	PB-TT	B=ST	B-TT		ST	TT		
, C 1	0	1 28	3,3 93,3	c ,39	-,19	•.50	46 .61	Ç	4,00	23,00 31,25		- 4.11.
TOTAL		30			-,29	 +81	 , 70			19-00	······································	·
IIEM NUMBER 2			-	Coeffi	CIENTS)F CORRE	LATION	· · · ·	ME	ANS		
SPTION	- #T	!	<u></u> р_		-PF-TT-	B-ST	9:11	- ,,-	<u>51</u>	- 11		
	0	3	10.0	•.41 .c	-,40	•.70	=,69	r	3,67	21,67		
2 Tutal	Ö	1 30	3.3	-,34	-,29	-,81	-,70		2.00	19.00	- 9 - 2	
ITEM NUMBER 3				Cueff	(CIENTS)	of Corne	LATION	•	ME	ANS	-	
OPTION	#T	N	P	Pb-ST	PB-TT	B-ST	B-TT		ST	77		
			6.7	44	-,40	84_	-,77		2,50	19.50	-	***************************************
C 1 2 TOTAL	0	26 2 30	86.7	C ,33 -,01	,40 -,15	-,02	-,28	C	7,50	31,73 26,50	8 - 7	
TTES MUNBER A		,		. 60466	rateumo i	o r C orne	I AMTAN		м	ANG		
			_	****						ANS ATTENTY		
uerian	4T	N	P	PB-ST	PB-TT	9=8T	B=77		ST	TT	and the same of th	•
C 1	0	7 22	23.3 73.3	c .55	57 .66	•.76 .89	-,78°	C	4.29 8.27	23.00 33,50	5 - 3	
TOTAL	V	30	100	e Maret de la			,70		-2.00	19.00	3 ∳	
ITEM NUMBER 5	· · · · · ·	<u> </u>	t post money to a	CUEFF	CIENTS	F CORRE	LATION	⊈ festeti	Visit All Control	ANS	Process Comments	
139 aprior	#T	N	, P		DR-TT	ReST			<u></u>	<u>TT</u>	<u>-</u>	140
0	n	1	10,0		-,70				3 11		maket delembracione	
ERIC TOTAL		<u>25</u> 2	83.3	-,34	-,75 -,27	1.00	-1.20 1.10 53	C	2,33 	15.00 33.04 23.00	7-6	
Full State Provided by ERIC TOTAL	•	30		-144	- 1 4 7	-140	~[33		. 4640	13144		

LERTAP 2.0	, -			BUNK	ARY ITE	STATIST.	IC8				PAGE 44	
TEST NO 1 ACT	INOK .	TR, 4R=	POP		e es de Car	สวิ. สหรัก เ	SUBTES		ACTS	SPEED-SUBIR	ACTION	
IIEN NUMBER 6		·		COUFF	icients	OF. CORRE	LATION-		MÉ	ANS		·
OPTION	#T	N	p	•	, PA-TT		B-TT	. '	5 T	TT	• *	•
0	0	8	26,7	•,56	•,53	-,75	•,71		,50	24,12		
C 1 Total	0	17	56,7 10,7		.49 -,02	.80	-, 61	9	,71 ,00	33.71 30.20	8 - 5	
10140		30		<u> </u>			ray (Tital) Tital	And Andrews		Side Set	,	
ITEM NUMBER 7				CUEFF	ICIENTS.	OF CURRE	LATION		ME	ANS	•	
UP11UH	-41	N	-	PB=ST	P8=11	B-81	B-11	Stanfal Stan	ST -		vanarios de la composition della composition del	
- • • •	- 1	11 19	36.7 63.3	-,50 -,50				5	.27 .21	26.18 33.11	14 - 7	
2 Total	0	0 30	. 0	,00	. 00	•00	.00		00	•00	Ξ, ,	
ITEN HUNBER - 8				OUPER	1/10aga	of corre	ATTAN		ue.		And the second of the second o	■ 161
OPTION	#T	ĸ	<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>		PB-TI	B-ST	8-11	- ACAR TO PROCESS AND FOR	<u> </u>	ANS TT		·
	<u>्रस्कृ 0.</u>										•	***********
C 1	1 0	8	26.7 3.3	C ,61	.59 09	102 1949/34	79 • • 22	C 10	00 00	37,75 27,00	12 - 5	,
701Air		30		2.15	<u> </u>	PARTITION IN THE RES		and the second second				H
ITEN NUMBER 9	Control of	1, 1.1		COEFF	CIENTS:	OF CORRE	LATION		N.			
OPTION	WT	H	P	PB-ST	PB-11	3 (B-81)	L.B-11		31	17	Market Selection of the Control of t	
0 C 1	0	17 11	56.7 36.7	-,39 C ,40	-,33 ,35	-,49 ,52	-,41 -,45	. C 8	,18 .64	28,47 34,00	11 - 8	
TUTAL	•	30	617		-,04	-,02	107 10 55		00	29,50		
ITEM NUMBER 10		,		Actual					magasa ma		A State of the sta	energy e
OPTION-	<u></u>				icients	OF CORRE	LATION		NE	ANS		•
0	0	12	40,0	•.54	• KA	. 40	. 60		第一次	25,67	And the second section of the second	Missigh
*************************************	0			-,64 -,16	-,06	.80 •,25	•,09	6	.07 .00	25,07 29,50	13 - 7	 -
TOTAL		30	• •	,	•							7

LERTAP 2.0				SUM	MARY ITEM	STATIST	108					PAGE 45	
TEST NO. 1 - ACH.	HUYLTR,	- 1 - 0 	<u> </u>				SUBTE S	r +	FACTS	SPEED-S	URTRACTION		
ITEH AUHEER 11				CUEF	FIGIENTS-	of C urre	lation		ME	ANS			 -
OPTION	ΝŤ	H	p	P#-8	T PB-TT	B-67	B-TT	•	8T	TT		e e	•
0 C 1	0	19	63.3	C ,6	5 .41	•,83 ,83	•,53 ,53	C	5.74 9.55	28,26 34,55		12 - 9	
TOTAL		30	 ₩	· ·	0 , 0 0 -	y₩							
ITEN NUABER 12				COEF	FICIENTS	OF CORRE	LATION		ME	ANS .		1	
GPTIGN	+7				7	B-ST	9-77		57				
	0	23	76.7	·•,5	9 -,51	-,80	•,70		6,22	28,48		15 - 8	•
2 TOTAL	Ç	30	.0	,0		,00	,00	•	.00	,00	,		·
										gi ·		en de la compressión	•

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LERTAP 2.0	•			SUMMI	ry Item	STATIST	108	e per per	Services in the services of th	PAGE 48	
TEST NO 2 * ACH	-HUNII	R, 45-P	0 P .	~			808788	T GENE	RAL OBJECTIVES		
IIEM NUMBER 1		<u></u>	 .	CUERF	CLEN 18	of C nr ke	LATION		REANS	TITEM DESCRIPTIONS	
HOLLAO	и Т	N	P	PB-ST	PB-TT	B-5T	B-TT	ST	TŤ	•	
, Ç	0	0	22.0	.00 C .43	.00	.00	.00	,00	.00	•	
3	0	23	22.9 2.9 65.7	-,0 9	-,14 -,10	,59 -,24 -,34	-,44 -,36 -,13	C 13,12 9,00 10,09	31.00 21.00 26.35	Numerousness Writes 0-99	-
4 Total	- 0	3 35	9.6	m,13	-,22	-,24	40	9,33	21,67		
ITEN NUMBER 2	· 	<u>_</u>		COEFF	CIENTS	OF CURRE	LATTON		HEANS		_
OP7108	H X	-11-		PB=81	PB=11	D-81	B-17	1842 - 1941 81	17 17 18 18 18 18 18 18 18 18 18 18 18 18 18		
0	. 0	0	.0	•(0 • ••••	•00 ••••••	.00	.90	00. 00,0 : 10,000	.00 23.00	1.	
c 2 3	0	2B 2	80.0 5.7	C ,50	,32 -,15	-,35	.45 30	C 11.46	28.00 (1) 22.50	Numerousness Represents 0-99	
5 Tutal	Ů	0 35	.0	-, 16	.00	•00	.00	0,75 ,00	.00		
ITEN NUMBER 3				COEFF	ICIENT8	OF CORRE	LATION		NEANS		٠,
OPTION	WT	N,	P	PB-ST	PB-TT	B-87	B-TT	87	TT		
C 1	1 0	28 7	80.0 20.0	-,39	30 34 34	3.55 3.55 3.55	49 48 4•.48	C 411,29	22.00	Open Sentences	
4	0	0	• • 0	.00 .00	.00	,00	.00	.00	.00 .00	Addition 0-9	
TOTAL										_	4
UPTION	wT	. N	P	PB-ST	PB-TT		8-17	ST	TT		
0 C 1	0	0 24	68.6	00 C ,33	. 27	,00	.00 .35	C 11,37	.00 28.17		
3 4	0 /	2 5	5.7 14.3	,05 -,46	.09 37	.04 ,13 •,71	-,09 ,18 -,57		25,75	Open Sentences Subtraction 10-18	<u>.</u>
TOTAL		35		00	Žiero de l		00				

LERIAP 2.0				81	IMMARY ITE	m Statisi	LICS			, ,	PAGE 49	
7661 NO 2 ACH.	HONE	F K7-46-P 8	p		 		-SURTE	5 71	CENERA	L OBJECTIV		
												ŀ
-ITEH HUMBER - 5				COE	PF1C1ENTS	OF CORRE	LATION			ANS		_ _
GPTIUN	нT	N	P	PB	ST P8-TT	B=ST	B-TT		ST	TT		
0	0	1	2.9		07 -,09		-,24	1	12,00	23,00		
C 1	0	22	62.9 5.7	C ,	,47 ,55 , 37 -,3 2		,70 ,65	C 1	11.82 -6.00-	29,86 17,50	Buckley Caludus (A)	
3	Ŏ	6	17,1		10 -,12	-,15	-,17		10,00	25,00	- Problem Solving (A) Comparison 11-15	•
4	0	4	11,4		.37 -,41	61	+,67		7.50	18,75	, domination at an	
TUTAL		35			,00			· · · · · · · · · · · · · · · · · · ·			-	•
		**									•	
ITEM NUMBER 6				COL	FFICIENTS	OF CURRE	ELATION		ME	ANS		
· gerry		N	<u> </u>	pg.	ST - P8 TT	1-57	Herr		57	77		
•		•					-					
0	0	0		· · · · · · · · · · · · · · · · · · ·	00 .00		.00 05	1	9.00	,00 		
2	Ü	10	28,6		04 .09	06	.12	. }	10,90	27,90	Problem Solving (A)	
C 3	1	13	37.1		36 .16		20		12,15	28,31	Add-part part whole 0-99	
5	0	0	31.4		3 9 - 2 4	¥	.00		-8,91 -00	24.27 ,00	<u>-</u>	
TOTAL		35	••	,		•-•	•••			***		
ITEM NUMBER 7	·			COI	efficients	OF CORRE	PLATION		HE	EANS	· · ·	
OPTION	#T	N	P	98	ST PB-TI	B=5T	B-17		ST	TT		
					0722	.19	56		12,00-	36,00		_
1	0	. 0	22.9		2731				9,12	22,75		
. 0 2	1	18	51.4 	Ç ,	,55 ,61 , 10 ,31	. 68 - 18		Ç 1	12,33 9,67	31,11 	Order, Place Value	
4	0	5	14.3		41 30	-	-,46		7,60	21,60	~ Ordering 0-99	
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TUTAL		} \$			40.00 Tes	in Burgh i				4.4		
,	•					arias 11 s		.· .	:	• 4		
TTEX NUMBER 8				CO	FRICIENTS	OF CURRI	ELATION	The said	X.	EANS		
OPTION	aT	N	p		ST PB-T1				ST	TT		4
												
C 1 0	0 1	. 5	.0 14.3	c ·	,00 ,00 ,41 ,30	.00			.00 13.80 ·	.00 .00 .55	va (k) i	
<u> </u>			5,7.		,41 ,30 ,04 <u>,1</u> 5	63	.56 39		13,80 · 11.00	33,20 32,50	- Order, Place Value	
3	0	10	28.6		08 01	,11	.02	:	11,10	27.00	Place Value 0-99	
ERIC	0	18	51.4		3739		-,44		9.56	24,39		
Full Text Provided by ERIC TOTAL	₩-	35	0		00 00	00	00	, 34 A	-00	00		

ERRAP 2.0				BUHMA	ay Iteh	STATIST	ICS	(1)		PAGE 50
EBY NO 2 ACH,	HUNIT	R; 484PO	7		<u> </u>	<u>,</u>	5087E81	GENER	AL UBJECTI	YES
TEN NUMBER 9				CURPF1	CIENTS (o f co rre	UATION -		eans —	
UPTION	h T	N	P	Pb=81	P8-TT	B-8T	B-TT	87	11	
0	0	0	.0	.00	.00	.00	.00	.00	.00	
	- 1 - 0	- 33	- 94.3 (.00	.00	.00	-101	c 10,67	26.82	Sentence Writing (A) Subt-simple separating 11-15
	()	2	5.7	.02	.02	,05	,04 100	11,00	27.50	
TUTAL	•	35	••	•••	,,,,	100	100	100	,,,,	
em number 10				COEFFI	CIENTS (OF CORRE	LATION	, 125	eans .	
OPTION			-	P8-87	10-11	8-51	B-17	61	- 11	
. 0	0	0	.0	,00	.00	.00	.00	.00	.00 .	
2	0	4	11.4	.01	-,09	.01	=,00 =,15	10.75	26,50 25,00	Sentence Writing (A)
C 3	-		22.9 (.20" 	, 11. - 52	-136	12,37 7,00	29,50 31,00	Subt-comparison 0-99
TOTAL	0	35	•0	.00	,00	.00	•00	,00	•00	
EN NUMBER 11				COEFF	CIENTS	DP CORRE	LATION		CARS 1	
OPTION	HT	N	P		PB-II	B-5T	B-77	87	TT	Decayed Triple to 1974 SRV as
		11	31.4	-,35	-,26	•,45	-,4	9,09	24,09	-
	Ò	0	12.9 (.00	.00		.00	00	.00 	Sentence Writing (B) Subt-part part whole-addend
į	0	2	5.7	-,05	- 24	11	40	10,00	20,00 .00	11-15
Tulkh	·	35	••	, (V)		gramas S		13 - 14 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	nga ng da	· 不能性多少。
En-Number-12-	ı			- 2027	CIENTS-	DF CURRE	LATION"		EANS	Million Commence
OPTION:	NT	N	P		PB-TT	8-57	B-TT	57	11	
0	Ų	0	.0	.00	.00	.00	.00	,00 9,50	.00	
		20		-,09	-,02			C 11.07	27.71	Sentence Writing (B)
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LERTAP 2.0		·** · · · · · · · · · · · · · · · · · ·		SUHMA	RY ITE	STATIST	IC8	_			PAGE 51
- FES1 40 2 - ACH	, +311	R, 48-PO	}				SUBTER	/	CENERA	L-OBJECTI V	
											122
1764 AHANGA 13-				- GUSFF1	CIENTS	OF CURRE	lation			ANS	
UPTION	ΗŢ	N	P	PB-ST	P8=TT	B=81	8-11		81	77	
0	0	0	2.9	.00 09	.00 02	.00 24	,00 •,05		,00 9,00 11,00	,00 26,00 27,67	Problem Solving (B)
c j	i	26	74.3	C .21	,17	, 29	.23	C	11.08	27.58	Subt-part part whole-addend
	-	<u>\$</u>	14.3	-,25 ,00-	-,23 ,00	-,38	-,36 ,01			22,00 	
, TOTAL		35									
ITEM NUMBER 14				CORFF	CIENTS	OF CORRE	LATION		ME	ANS	
COTTON	 7		р	<u> </u>	na-tt	P-5T			<u> </u>		
C C	0	0	42.9	.00 33	.00	.00	,00	c	,00 11.67	•00 •00	
2	0	, <u>8</u>	22.9	-,25	•,35	35	-,49		9,25	22,25	Problem Solving (B)
	0	<u>\$</u>	8,6 	.20 .26	.22 	.35 -35	.39 -,32		12,67 -9,33	32.00 24.00	Subt-join-addend 0-99
TUTAL	0	0 35	.0	,00	•00	.00	.00		.00	,00	
ITEM NUMBER 15				Coeff	CIENTS	of Corre	LATION		HE	ANS	
OPTION	WT	N	þ	-	PB-TT	B-8T	B-TT		ST	77	
							00		00	00	-
c 2	0	A 12	22.9 34.3	c ,50	,39 ,21	,26 ,64	.54 .27	C	11,75 12,83	32,00 28,92	Algorithms
	0		11.4- 31.4	-,24 -,49	-,2H	=,46 =,64	-,46 -,49	*	9,25 8,45	21.25 22.91	Addition Algorithm
5 Total	0	- 0	.0	,00	.00	.00.	.00		,00	.00	•
		. ••						4.			
TTEN MUNBER 16		······································	· ·	COEFFI	CLENTS	OF CUPPE	LATION		NE.	ANS 1	
151 OPTION	κŢ	N	P	PB+ST	PB-TT	B-ST	B-TT		ST	77	
0 1	O Ü	0	.0 22.9	,00 -,03	.00	.00	.00		,00 10,50	.,00 25,12	152
C 3				02.	10		- 14	<u> </u>	10,57	28.24	Algorithms
4	0	10	28.6	-,45	.44 -,40	,65 •,5	,58 •,53	C	13.10 8.50	31.80 22,30	Subtraction Algorithm
ERIC TOTAL		35	0	.00	00 V		-00		93 19.7	00	
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iedi nu	4	ACH,	MITHUM	45-POP

-		4		-		عصلت
30	TVOI		GENERA	U UBC	ונכו	1760

ITEM NUMBER 17		,,-		CUEFF	icients	OF CURKE	HUETAU	,	HEAH8		·
OPTION	WT	N	P	P#-57	PR-TT	B-87	B-TT		TT	(1) (全) 數(S angara (1977)
0 C 1	0	30	85.7	C ,33	.00	.00	.00		0 27,40	}	
3	0	0	5.7 .0 8.6	•,36	.00 -,32	.00 65	.00 58	7.0	0) }	Counting On 9-18
TOTAL	0	35	•0	00	- ,00	.00	.00		0 .00		
ITEN WUMBER 18	·. ·			COEPF	CLENTS	OF CORRE	GATION	Marie Victoria	MEANS.	S SERVICES	
UPTICH	HĪ			FB-37	PB=11	8-51		81	71		
0	0	1	2.9		-,16	-,38	*,42	8.0	0 20.00		·
C 2	1	18 6	17.1	03	, , , 10	•.04	.32 .15	C 11.6	6 24,86 7 28,65 0 28,5		Counting Back 9-18
5 Total	0	. 35	0.0		.00	.00	,00	.0			1
ITEM NUMBER 19		ing ter Mil Ngjaran		COBFF	icients	OR CORRE	LATION		HEAH8		
UPTION	w?	N	P		PB-TT		B-77	ST			
	0	0	, , , , , , , , , , , , , , , , , , , 	- 1			.00		0 0	,	
C 2	1	26		C 49	,44	366	, 59	C. 11,5	8 328,6)	Cor.ting On 18-31
4	0		2.9 8.6	-,36	-,31	•.65 •.00	-,24 -,55 ,00	9.0 7.0 .0	0 19.6		p-Modelson.
TOTAL	•	35	,,			a a Vina meta bilit	. Nigi katik	None - Architecture	and a part back	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	a trade program and the

EPTAP 2.0				1	Sukhari	ITEM	STATIST	IC8				PAGE 54
EST 60 2 ACH,	MUNITR	, 45*PO)···· ··	ويتواله والتواب	بالوغول فتواطنه	·	der den	Subtes	1 -2	-senten	CE WRITING	PREE NESPONSE
TEM NUMPER 1				Ci	deri'ici	LENTS (o p C ukke	JATIUN -		ИČ	ANS	ITEM DESCRIPTIONS
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0 C 1	0	1	2.9 94.3	Ç	.02	.08 .05	.05	*,05	Ç	3.00 2.97	26,00 27,00	Sentence Writing
TUTAL		35	7,9		-154	-,09	-1,37	-,24			13,00	Add-part part whole 11-15
TEM NUMBER 2		- 		C	OEFF1C	ients (of Corre	LATION		ME	ANS	
UFTION	nt.			Pi	b-37	H=11-	B-61	- 0-77		37	-11	
	O	0	.0		.00	.00	.00	,00		,00.	,00	Sentence Writing
2 Total	0	 32- 3 35	91.4 8.6	-C	•,52 •,52	-,22 -,22	-,93	•,40		3.03 1.33	27.34 21.67	Subt-simple separating 0-99
1EN HUMBER 3				C	oeffic:	LENTS (OF CURRE	LATION		ME	ANS	
OPTION	hT.	N	P	Pi	6-5 T	B-77	8-5 T	B-TT		ST	TT	
C 1 2	1 0	22 12	52.9 34.3		.68 •.63	,37 -,37	. 86 81	,48 ,48	Ç	2,00 3,36 2,08	26,00 28,91 23,17	Sentence Writing Subt-part part whole-addend
TOTAL		35			***				i jelo			0-99
TEN NUMBER 4					OFFF1C:	ENTS (o f Ci)rre	LATION			ANG	
OPTION	нT	Ņ	Þ	· Pi	8-8 T)B-TT	B-ST	B=7T		ST	77	
0 C 1	0	14	2.9 40.0	C	.02	•,14 .48	.05	-,36 ,61	C '	3,00	21,00 31,07	Sentence Writing Subt-join-addend 11-15
TOTAL		35	- 57.1		-,74 -	43		-151		. 2.30	- 24,20	-

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EST NO 2 ACH.	MONITR	, 45-POI	, 				SUBTEST	- 3 - F A	cra ar	EED==ADD1	TION	•	•
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Ten ninben 1				COEFF	CIENTS C	r-Corket	HULTER	 •	MEAT	15	ITEM DESCRIPT	tons	****
OPTION	wT	N	P	PB-ST	PB-TT	B-8T	B=TT	. 8	7 .	TT :			-
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TOTAL	Ü —	. 35	5.1	-,30	-,27	-,73	-, 55		30 -	19,00			
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		 			P8-11	B-87	8-11	8	1		artificipy		
Ú	0	. 4	11.4	-,45	-,36	•,74		4.	00		a di A7 waa 1.29 €		, r
C 1 2 TOTAL	Ü	2 2 35	5.7	-,26	-,08	. =,52	-,16		50	24,50	2 + 5		
EN NUMBER 3				COEFF	icients () CORRE	CATION		MEA	18		**************************************	*** ** *** *** *** *** *** *** *** ***
OPTION	WT.	N	P		PB=TT	B=8T	8-17	8	1	TT			
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EN HUNDER 4	u M	N		COEPF	CIENTO (F CORRE	LATION .		HEA	NS TT			7d (1)
OPTION 0	WT O	N 5. 2	5.7	26	•.06	• . 52	-,13	4,	50	25.00		<u>Cambrille</u> Steiner	idian er [*] . [†]
C 1	1	32 	91.4 	C ,34	.11, - .09 -	. 57 . . 55	. 18	C 7,	34 00	27,09 ,23,00	7 + 2		-
TUTAL		35											
EN NUMBER 5			· da la		ICIENTS (OF CURRE	LATION		MEA	NS _.			
- OPTION	**	- ! !		PU-ST	P0-77	9-57			. (54)		San	Miliaksad (18 a.)	
0	0	7.	20.0	-,48	•,56	-,69	80		71	18.86	2 7 6		
2 , Total	0	0 35	- 00.0	.00	00	.00	.00	•	00	*00	- 470	•	•

LERTAP 2.0				SUMMA	RY ITEM	STATIST	IC8				PAGE 57	
- 1667 h0 - 2 - ACH y	-MJI, 1 TH	, 48=1101	\				-5U97ES	T_3	FACTS	SPEEDADDI:	1104	
	•	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						. •			1	126
ITEN NUMBER 6	<u> </u>			Corft1	Clents-C	i f-C liake	Latiun -		XI	ANS	<u> </u>	
OPTION	HT	N	P	PB•ST	P8-TT	B-67	B•IT		51	TŤ		
0 C 1	0	10 24	28,6 68,6	C .50	-,34 ,36	*,68 ,65	-,45 ,48 ,24	C	5,10 7,92 7,00	23.00 28.62 23.00	3 + 5	4
TUTAL		35			•			•	•	•		
ITEM NUMBER 7		 _		CUEFFI	CIENTS (F CORRE	LATION		ME	CANS		
	+1	H	P	PB-ST	P8-17	9-57	8=TT		<u>\$1</u>	<u>TT</u>		
. 0	0 .	19	54.3	•.71	•,55	89	69	i de la companya de l	5,47	23,26		
2 107AL	0	5 35	31.4- 14.3	.12	.12	,18	,19		7,80	29.00	4 + 8	
ITEM NUMBER 8	,			COEFFI	CIENTS (F CORRE	LATION		ME	CANS	and the control of the second	
OPTION	γT	N	P	PB-ST	PB-TT	B-8T	y-II	منده او ا الانتظا	ST	77	,	
	<u> </u>	13	-37-1		47		,60		5,46	22.46		•
C 1 2 TOTAL	0	22	62.9	C ,51	.47	,65 ,00	.60	C	8,05	29,45 ,00	3+7	
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ITEH NUMBER 9				COEFFI	CLENTS (or Corne	LATION		N	AUS		
OPTION	hT	N	P	PB-ST	PR-TT	8 - 5T	B-TT		ST	17		
0 C 1	0	24	68.6	-,43 C ,59	-,43 ,59	-,56 ,82	56 .82	c	6,37 9,75	24.79 34.62 22.67	5 + 9	
TOTAL		35									•	-
ITEM NUMBER 10			<u> </u>	COEFF	CIENTS	OF CORRE	LATION		-	EANS		
. 53 				PB-ST	PB-TT	B-ST.	Bett	N. K. C.	ST	TT		ับป
0 C 1	0	25 1	71.4	-,59	₹,55	79	~,73	<u>.c.</u> 1	6,16	24,36	6+8	,
2 TOTAL	Ō	3 35	8.6	.07	,05	,13	.09		7,67	28,00	• • • •	
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)		-		BUMMA	RY ITEM	STATIST	ICS		·, 	PAGE 58	
ACh.	MONITR,	48-POP	-		<u>.</u>		SUSTEST	3 FACT	S SPEEDADDI	TION	
R-11	· ·			CUEFF1	CIENTS	o p C orre	LATION		MEANS -		
PTION	bT_	N	. P	PB-ST	PB-II	B=5T	B-TT	81	TT		
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TOTAL		35	8.6	.07	• • • •	•••	100				
R 12			-	CUEFFI	CIENTS	OF CORRE	LATION	<u></u>	MEANS	- ;	
PIION	WT	N		P8=87	₽8=33 (3.55	8-81	8-17	- 81	11	A STATE OF THE STA	
- c 1	- 1	14	40.0	-,43	-, 28 -52	-,55 ,68	.65	5.79 C 9.07	31,13	4+9	
2 Total		6 35	17.1	-,35	-,31	52	46	5,17	22.00		
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	•						<u> </u>			<u>- 63-</u>	
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<u> </u>	<u>.</u> .	7-	a. Zwia.		4 10 19				A STATE OF THE STA		
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LERTAP 2.0				81	MMARY IT	M STATEST	108		ı		PAGE	60
TEST NO 2 ACH,	MITHUM	, 48=P01					-aubiei) 	FACTS	- 37260==3 081	RACTION	
TTEN NUMBER :				Cu l	yyıcıent ı	-ur-corke	LATION		k1	TANS .	ITEM DESCRIPTIONS	128
UPITUN	#T	N	P		57 PB•11		U=TT		81	TT	TIEN DESCRIPTIONS	
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TOTAL	•	35	••		•••	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,,		,,,	***		
ITEM NUMBER 2			يبيسته دانست	CUI	FFICIENT	of Corre	LATION		M	:ANS		
UPTION	ĦŽ.	 		Pö	87 - 78-1 1	, n-81	B-71		87	17	1	
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2 Total	0	i 35	85.7 2.9		15 -,2		-,72	,	4,00	20,53 15,00	0 * 4	
ITEM NUMBER 3			· ,	CO	:FFIC1ENT!	OF CORRE	LATION	u. C. e	M	BANS	• • • • • • • • • • • • • • • • • • •	**************************************
OPTION	μŢ	N	P	PB	8T PB=T	B-81	B-11		87	77		
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2 707AU	Ö	0 35	.0	9.0	00 ,00	1	.00	C	,00	28,18	,-,	
- 1384 NUHOSH 4 :					!##1&18 ##	s-UF-CURK E	4.177 08		······································	EANS -		
' GPTION	/1	N	P		ST PB-T				8 T	11		
0	. 0.	13	37.1		51 -,3		-,50		4,54	23,23	7 - 4	
Ci	0-	16	51.4 		,63 ,49 21		,62 ,30	<u> </u>	7.72 4.75	30,28 23,25	-	
TOTAL		35			, .	· · · · · · · · · · · · · · · · · · ·		i Li America			<u>:</u>	
ITEN NUMBER 5				CO	FFICIENT	OF CORRE	<u> </u>			EANS		
OPSIUN	- 1		- 1 ,	P#	67 PD-1	r 0 - 61 -	- U-77		61		·	
.0	0	13	37.1		.535		73	_	4,46	21,54		4.00
ERIC TOTAL	0	19 3 35	51,3 8,6		, 67 ,6 ,27 -, 2				7.74 4.00	31.32 21.67	8 - 6	164-

LERTAP 2.0		•	•	SUMM	ARY ITEM	STATISTI	CB	11,19,00	ji van		PAGE 61	
TEST NO 2 ACH		78,-46-P	0P	· · · · · · · · · · · · · · · · · · ·			Budtes)7 4 - f	ACTS (IPACTION	
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2 Total	Ö.	5 35	14,3	-,42	-,30	•,66	-,59		,60	20,20		
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SUMMARY ITEM STATISTICS

TEST NO 2 ACII.	PONITR	, 15- P01	}	*	SUBTEST 4 FACTS SPEED-SUBTRACTION								
ITEM NUMBER 11				COEFF	CIENTS (o f-Cor ke	uation-		ne	ANS		130	
OPTION	WT	N	P	PB-ST	P8-11	B-8T	B-TT		ST	'IT	1		
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TOTAL	V	35	14,3	*,49	w,5%	-170			3,20-	17.60			
ITEM NUMBER 12				COEFF	CIENTS (OF CORRE	LATION		ME	ANS			
OPTION	71	N	P	P8-87	-PB=11	8-81	B=27		ST .	- 11	1		
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-TEB1 NO-13 ACH.	- PUN1	111, 41-PO I			•	 	SURTES	IT & GENE	r ål-object	TAS .	· · · · · · · · · · · · · · · · · · ·
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- ITEH-NUNSER 1-C				CUEFF	i cients	o r Co kre	Lation		KEANS .	ITEM DESCRIPTIONS	.•
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GERTAP 2.0					8UMA.	ARY ITEM	STATIST	105				PAGE 66
TEST NO 3 ACH	NUNIT	R,-41-PC	 	******			····	Suate	st	i GENER	U OBJECT:	TVES
TTEM NUMBER 5		·····			- A., et es e.		N.S Also in the second	a 6 M. B 14				132
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uPTIO _R	NI.	-11			Pb=31	PBMTT	8-87	8-77		- 87	- 11	
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262 NA -3 - ACH	- +0 +* ·	} 1 4 4∫1()P			-	سيمستون برانية دو	eur is	T-1-GENERA	l-objecti i	
r eh Nunber 9-	 -	,		COEFFI	CIENTS (ip Conrei	ATION .	H\$	ANG	
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TUTAL		34								
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· OPTION			P		- 11 -11		4-77	The state of the s	**** 	
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LERTAP 2.0				SUMM	ARY ITE	N STATIST	108		The state of the s	PAGE 68
TRAS KIT 3 ACH,	MORES	K, 41 -PO)	****			-8UNTE	IT I GRNE	RAL OBJECT	
		·			IĈIENTA	-of-Cukae	1,477 111		MEANS	134
OPTION	WT	. N ·	P		PB-TT					D.
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c 3	1	32	94.1	C .24	-,39 ,17		.31	_	26.75	Problem Solving (B) Add-simple joining 11-15
TOTAL		34	2,9	,00	.15	.01	.37	11,00	33,00	and the second s
ITEM HUMBER 14			,	COEFF	CIENTS	OF CORRE	LATION	, ,	HEANS	,
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ITEM NUMBER 15	1			· .	(Cienta	OF CORRE	LATION		4EANS	
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9 880 - 111 - 118										
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1254-144814 - 17 -					CIRHTU	up Cca ne	lation		HEANS	
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OPTION	d?	N	P		PR=11		8-17	57	77	
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Lertap 2.0				SUMMI	IRY ITEM	STATIST:	ics			T.	PAGE 71
- 7887 NC 3 - xCm,		, 41- 701	····	·	···.		-Suptes	7-7-	- SFN Telk	CE-Writing-	FREE RESPONSE
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TIEN AUNIER 1				C06FF	GIFATS-	of-Coraci	µ N∓4QN −			ANS	₩ ** **********************************
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· OPTIUN	hT	N	P	PB-ST	P8-TT	8-8T	8-77		87	TT	
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1-ERTAP 2.0 TEST HO 3 ACH. MONTER, 4T-POP					ARY ITEM	STATIST	PAGE 13					
-TEST-110-3-ACII;-	HUNIT	'R, 41=P0 f					-8UP 256) 	FAGTS	epued==addit	10#	
ITEH HUHBER 1				CUEFF:	lcients (OF CORNE	LATION		H <u>S</u>	ANS	- ITEM DESCRIPTIONS	_
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0 C 1	0	26 4	11.8 76.5	-,43 C ,54	•,45 ,52	*.71 .74	•,74 ,71 ,38	C	4,50 8,73 	16,75 28,65 -21,50	2 + 4	_
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4 NUMBER 2				CUEFF	ICIENTS (OF CURRE	LATION	_	ME	ANS		
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*Full Text Provided by ERIC

LERTAP 2.0 SUMMARY ITEM STATISTICS								PAGE 74				
TEST NO 3 ACH,	HUNIT	R, 41-PO	p			·· — · · · · · · · · · · · · · · · · ·	SUBTE	37 3	FACTS	SPEEDADDI		_
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101hi		34				,			,	,	•	
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LERTAP 2.0				SUMMA	RY ITEM	STATIST:	108			PAGE 77
7259 NO 3 ACII.	- Hùn 1511	, 41-40 P	l	<u>.</u>			-Subtes	1 4 FACTS -	upeedsubt	RACTION
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LERTAP 2.0	•	•		AMMUR	RY ITEM	STATIST:	TC8		PAGE 78			
TEST NO 3 ACH, MONITR, 41-POP SUBTRACTION												
	ı										•	·
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NOTTON	WT.	N	P	P8-51	PH-TT	B-8T	B-11	8	77			
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LERTAP 2.0				SUMMI	ARY ITEM	STATIST	ICS		· .			PAGE 79	
TEST NO 3 ACH.	*341 71), 47-20	·	<u> </u>	-		SUBTES	:T -	FACTS	SPEED-SUBT	RACTION		
TEN AUABER 11				COSFF	icients (o f Corre	LATION	-		CANS	•		142
OPTION	WI	N	þ	PH-ST	PR=TT	B-ST	B-TT		ST	TT	,		
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				BUNN	ari item	Statist	1108		•		PAGE 31
'261' NO 1 - ACH,	. hunit	Rj-Sk-P (OP				31908	ST-1 GENER	al orject	IVES	
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titen novocu 13					CUEPP	icients—	OF-CURKE	CLATIUN	——— M	CANS		
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ERTAP 2.0				SUMMA	RY LTEM	STATIST.	ICS				PAGE 35
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TER NURBER 17				- Coeff	CIEHTS-	of-Corre	latiu n-	······································	· · · · · · · · · · · · · · · · · · ·	EANS	
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ex unaber 3		,	· ·············· ·	,	COEFFI	CIENTS (OF CORRE	LATION		ME	ANS		
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LERTAP 2.0				SUNNA	ry Iteh	STATIST	105				PAGE 39
TES NO 1 ACH,	- 10117 8	1, 58-P (01'				- SUBTE	(1 -)	FACTS	SPEEDADDI	110+
ITEA NUMPER 1			<u>.</u>	COEFF1	Cients-(o f- Corne	LATION	•	NS	ANG	ITEM DESCRIPTIONS
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LERTAP 2.0				SUMM		STATIST	ics				PAGE 40
TEST NO 1 ACH	COULTR	, SK-POP		— 		······································	SUBTES	17-3-	PACTS	3PEEDADD11	10n
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TIEN NUMBER 6	<u>-</u>	· · · · · · · · · · · · · · · · · · ·		COEFF	icients-	OF CURKE	LATION-		ИE	ANS	
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		<u> </u>									-
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PAGE 41

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SUBTRET 3 FACTS SPEED--ADDITION

TTEN NUMBER 11				- Coeffi	CIENTS -	of C (Wre	LATIUN-	· · · · · · · · · · · · · · · · · · ·	HEAH	V8	
option	WI	h	þ	P8-ST	P8=TT	B -S T	8-TT	8	T	TT	· · · · · · · · · · · · · · · · · · ·
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ITEM NUMBER 12				COEFF	CIENTS	OF CORRE	LATIUN		MEAI	18	
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LERTAP 2.0					AMMUR	ry ltem	STATIST	ICS			PAGE 43	
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					-Cuef f1	Cleats-	of-C orre	<u>LATION</u>		HEANS	ITEM DESCRIPTIONS	152
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GETTON	#I			LD-91	 		<u> </u>	- 51	- 11	4 18 1		
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2 Total	Ö	· 4	56.7 13.3	•,33	-,22	••52	•,34	-C9.1 (5.7)		·	14 - 7	•
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- ITEM NUMBER 9				ለስሮያዊ	(Albume d	ነድ <u>ብላ</u> በዕድ	1. 五年学の日		MELNE	· 		
OPTION	WT	N	P	PB+ST	PB-TT			ST	17			
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ERTAP 2.0					SUMMA	RY LIEH	STATIST	1C8					PAGE 45		
'68's n(; -1 46h ;	- 404144	, 5k- P0 P				<u> </u>		-808786	 	FACT6	SPEFD==8UBT F	ACTION	ACTION		
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UPTION	WT	N	p		PB-ST	P8-TT	B-8T	b-TT		. ST	TT				
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TOTAL	·	30	1017			, F2V	110-			8,40-	34,40		,		
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PRHIAD 5.0		-		SUMM	ary Item	STATIST	105			PAGE 48
TEST NO 2 ACI	, MORT	7 6, 88 *P(OP-				SUBTE	IT I GENER	IAL OBJECTS	¥£8
III TUMBER J			·	Culfi:	ICIENTS	of Curke	LAYION		IEANS	ITEM DESCRIPTIONS
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				•	Synna	MI ALGO	OLUTION	Tra	er er er er			PAGE 50
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em Minber 17			,	CUEFF	CIENTS	OF CURKE	LATION		EANS	
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3 4 5	0	0		.00	00 00	• 80 • 00 • 00	.00	7.50		Counting On 18-31
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DERTAP 2.0					Summi	iry Iteh	STATIST	ICS				PAGE 54
TEST TO Z ACH.	TUPITR	, 53 ×80	p	** 15454	· 	يحسب خالا با	1	-Subte	ST 2	Sente	CE WRITING	TREE RESPONSE
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	LERTAP 2.0		,		SUMMA	RY ITEM	STATIST	ICS			, "	PAGE 50	,
	TENT HO 2 ACH	TADA!	1x, 55-201	 				SUBTES	1 3	FACTS	SPEEDADDI	TION	<u> </u>
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Leniap 2.0	·			8041	ARY ITEM	STATIST	IC8				PAGE 57	·
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LERTAP 2.0	•			SUMMA	RY ITEM	STATIST	108			PAGE 50	
TEST NO 2 ACH.	MUNIT	k, 5 5*POF)		···· ,- ·-	 	SUBTEST	3 FACTS	SPERD-ADDIT	10N	
TIER AURBER 11				CUEPF1	CIENTS (o r Cu kke	Lation	nie nie	ians .		<u> </u>
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TIPE NUMBER 1				CORPE	CIENTS 1	i r-Co inkei	un'i lun		ME	ANS	ITEM DESCRIPTIONS	*
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ITEX NUMBER 3				COEFFI	CIENTS (OF CORRE	LATIUN		ME	ANS		
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2 TOTAL -	0	6 30	20,0	-,44	-,50	-,63	-,71	* * * * * * * * * * * * * * * * * * *	4,17	21,50	<u> </u>	-
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PAGE 62

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TEST HO 3 ACH,	MUNITA	, 51×PO)				-sub (M	ST I GENER	AL OBJECTIVES	
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TIEN NUMBER 5				CUE	FICIENTS	UP CORNE	LATION		eans	Ď
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ITEM NUMBER 7	<u> </u>	, M						N. C. Marie		
ITEM NUMBER 7	#T	N	P		FICIENTS ST PB-TT		B-TT	ST	EANS	
HOTTON	#T	0		. 6R≃	78-17	8-57	8-T7	ST .00-	TT .00	
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LERTAP 2.0			***************************************	SUMM	RY ITE	M STATIS	LICE		····		PAGE 68	
TEST NO 3 ACH.	MUNI	TK, STMP) p		',		-80UTE	ST 1 GENE	RAU OBJECT	1VE3		
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liem binner 13				Cuerry	Cients	OF CURK	ENATION		MEANS			ò
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ITEM NUMBER 15				•		OF CORRE	LATION			3 1 V		
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SY-NO J ACH	-40+17 8	, 51-10 1		,	<u> </u>	<u>, , , , , , , , , , , , , , , , , , , </u>	Surtes	T 1 GENER	al object i	.Ves	
::- <u> </u>				COENTI	Cleats-1	JF-CURKE	<u> ATTUN</u>		EANS	,	
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EN NUMBER 18				* .	1 - 1 - 1 - 1	of Curre			EANS		
presentation	***	<u> </u>	 _p		PR-TT	- B-ST-		<u> </u>	<u>TT</u>		
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2 3	0	2 4	6.3	-,36 -,56	-, 49 -, 37	•.70 •.90	96 59	10.00 9.75	22,50 28,25 23.00	Counting On 18-	31
5 Tutal	0	0	3•1 0	,00	.00	.00	.00	,00	.00		
em Number 19				Cueffi	CIENTS	of Corne			EANS		
OPTION	WT	N	P		PB=TI		B-TT	ST	TT	· · · · · · · · · · · · · · · · · · ·	
0 1 C 2	0	3 20	9.4 62.5	.00 -,33 C .44	-,19 -,19	-,57	-,40 -,34	11.00 14.75	30,67 37.05	Counting On 9-1	8
4	. 0	<u> </u>	14.8 9.4 .0	*,25	- 29 - 29 00	44 .00	•.51 •.00	11,67	28.67	<u></u>	

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ERTAP 2.0					8ŲMM)	ARY ITEM	STATIST	'ICS			1	PAGE 71
'261' hù - 3 ACH,	- 401[[1	H , 5¶- P(}}				سيب مست	-808766	! } _	ern7ei	CE WRITING	TREE RYSPONSE
TEM NUNBER 1					,							
180 MANARE 1					-cusff]	lcients	uf Cu hhe			N	ANS	ITEM DESCRIPTIONS -
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	_•		- 111		,50 ,50	-,02	,96 1,21 -	-,03 04	Ç	3,13	34,45 - 35,00	Sentence Writing Subt-simple separating 11-15
TOTAL		32	•						Jey. 14		****	,
TEM NUMBER 2						· · · · · ·			<u> </u>			·
_	•				COEFFI	(CLENTS	OF CORRE	LATION		ME	ANS	
	#T				-PB-ST-	-00-TT	8-57	- Hatt	1	87		
0	0	2	6,3		•,19	.02	-,38	.04		2,50	35,00	
		13 17	40.6 53.1	_Ç	.70	21			1227	1,69_	36,23	Sentence Writing
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TEH NUMBER 3					Corper	F1 Buffa	na anna	Lhadan				one of the second of the secon
OPILION					-		OF CORRE	PATION		ME	ANS	
OFIAN	ďT	N	P		PH-81	PB-TT	8 - 51	B-TT		87	TT	
C 1		2	6,3		-,02	,12		24		3.00	31.50	•
2	0	27	84,4		.15	. 23	, 22	35	Ç.,	3,11	35,11	Sentence Writing Add-simple joining 0-99
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. <u>.</u>			•		' '		١.					•
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ci	1	27	.0 84.4	C	,00 ,73	,00 ,14	.00 1.08	.00 .21	c i	,00 3,30	,00 34,85	Sentence Writing Subt-part part whole-addend
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164-NUADER - 1-				COEFF:1	Cleats.	of Curry	Lation-		MEAI	S		ITEM DESCRIPTIONS	
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<u> </u>	+7		<u> </u>	PŮ~ST	<u> </u>	u_s_	#=#T-		ST	<u> </u>	· ·		
0	Ö	1	J.1 93.4	73 C 90	•,5⊌ 65	-1.81 -1.42	•1,43 —1,15		00	14.00 35.53		· · · · · · · · · · · · · · · · · · ·	
2 Total	Ö	32	3.1	39	•,32	-,96	80	- 6	,00	23,00		,	
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TUTAL		- 34					•						
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OPTION	T	N	P	PH-ST			H-TT	,84°, 3'5590	ST	<u>tt</u>	, , <u>, , , , , , , , , , , , , , , , , </u>	a kifdi ya kecamanan Makada kasakanin na tari e ki k	_
0	0	0	-100-0 -0	.00 .00	.00	.00	00	- Carried	,00 ,56	.00 .34.47		5 + 0	
2 Total	. 0	0 32	•0	•00	•00	.00	•00		.00	00	:		

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LERTAP 2.0				SUMM	ARY ITEM	STATIST	ics			PAGE 74	
TEST NO 3 ACH	, MONIT	K, 51-PO	,	• 	 	ب رت میجند	-Subtes	i t i tacis	SPEED-ADUIT	11011	
TIEM NUMPER 6					معايدتا بِــــــــــــــــــــــــــــــــــــ		<u> </u>		B and.		174
				- CUEPF.	CLENTS-	UP-Cu rke	UNTIUN	Ħ	RANS	· · · · · · · · · · · · · · · · · · ·	················
optium	ηŢ	N	P	PB-ST	PB-TT	18 - 81	B-TT	ST	11		
C 1	0	1 30	3.1 93.8		,59	,99	-	2.00 C 10.87	14,00 35,43	1+3	
	v	32	3.1	 √05	-,34	-,12		10,00	26,00		
ITEM NUMBER 7				COEFF	CIENTS	OF CURRE	LATION	N	EANS		
DP1104	HT-	N		Pb=51	- 20-11		- 5-11		!}	;	
	0	<u> </u>	3,1 - 96,9-	-,73 ,73	-,58 -,50	-1.81 -1.42	=1.43 	2,00 -C 10,04	14,00 - 35,13	9+2	
2 TUTAL	0	32	.0	,ú0.		•00	.00	.00	.00	774	,
TTEM NUMBER 8				COEFF	CIENTS	OF CORKE		y de la companya de l	EANS	**************************************	
. OPTION	yT	N	P	PB-ST	P8-TT	B-ST	B-TT	ST	TT		
C 1 2 Tutal	1	28 1	9,4 87,5 3,1	C ,50	-,46. ,34	-1,04 ,78	.53 .32	6.07 C 10,96	25,33 35,29 39,00	6+6	
		38 -		."			,		,		
TTEN-NUMBER 9				CUEFF	CIENTS-	OF CURINE	LATION	. H	GANS	:	·
UPTIUN	110	N	p .	P8-ST	PB-TT	B=3T	8-77	ST ST	TT	· · · · · · · · · · · · · · · · · · ·	
0 C 1	0	5 27	15.6 84.4	c -,73	•,68 .68	1.08	-1.03 1.01	7,00 C 11,22	24,40 36,33		
TOTAL		32		,00		O O -	-100	100	100 .		
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011201	0	6	18.8		- 63	 	- 8-11	67		The second second	
		<u>, 13 </u>	6414	-,17 -,65	61 -	-1.12 		7,17 C 11,50	26,17 	7+6	<u>-</u>
ZDD CCZ	V	32	12.5	-,01	-,12	•,02	•.19	10,50	32,50		256
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1 PR 3 Mr 3	ACITE	TOTAL NA	

-BURTEST 3 FACTS SPERD-ADDITION

-1754 NUMBER 11		,			.CIEHUS (ië endud	f AWTAU		· Brund - Ayv	
UPTION	ψT	N .	P	Pb=ST	PB•TT	B=81	H-77	ST	TT	•
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TUTAL		32			,2ÿ-			9,50	- 27,50	!
ITEM NUMBER ,12			· 	CUEFFI	CLENTS (F CURRE	LATIUN	<u> </u>	IEANS	<u> </u>
007100			<u> </u>		PB-TT	BST	<u> </u>			
0	0	5	15,6	-,44		67	-,25		v. 32.00	The second secon
2 Tutal	0	1	3,1	-,13	.07	•,33	•18 •18	9,00	34.85 37.00	6+4

lertap 2.0 1881-no}ach	-44-176	, 	<u></u>	5 UMM	ARY ITE	M STATIS1		## 4 m.a		PAGE 77	
		., .,					-44414	87 - 4 - FAG	TS SPEEDSURT	ACCION	
1884 - 140404 1	***** <u>-</u>		· · · · · · · · · · · · · · · · · · ·	Cukfi	ICIENT <mark>S</mark>	- 0 FCJHKI	<u>CLATION</u>		-HEARLE	- ITM DESCRIPTIONS	176
opi 104	dT	K	. p	PB-8T	P8-11	n-st	B-17	5T	11		
CI	0	JO	3.1 93.8	c ,48		1.15	-1.43 .90	C 7.4	7 35,30	3 - 2	
TUTAL		32							0		
ITEN NUMBER 2	····			CUEFF	ICIENTS	OF CORRE	LATIUN		MEANS		···
0P11+1	**	#		p _{u=\$1}	-PH-TT	4-87	# * \$\$				
) ————	6 23	18.8	-,62 C75	-,58 84	-,9U	*,84	3,6	7 26.83	6 - 4	
2 Tutal	0	3 32	9,4	•,33	06		10	4,3		V-4	
ITEN NUMBER 3				COEFF	ICIENTS	OF CURRE	LATION		MEANS	The specific of the second of	
OPTION	HT	N	P	P8-87		8-5T	5-17	87	77		
	<u> </u>			44.		=1.20	-1,43		14.00		
C 1	0	30 1	93.8		.51	1.15	.90	C 7.41	35,30	9 - 1	
TOPAL	<u> </u>	32	3.1	-,42	*,15	-1.03	*,31	1,00	30,00	****	
ITEN NUMBER 4			,	CUEFF	icients.	of Corre	LATION		AFANS		
OPTIUN	a?	N	P	P#=57	PB-TI	B=ST	B-TT	81	TT		
0	0	3	9,4	•,46	-,39	80	-,69	3,33	26,67		
C 1	U	25	78.1 - 13.5 -	C .65	.44 = 21	.90. 	,62 	C 7,92	35,96	7 - 3	
TOTAL		32	W								
ITEN NUMBER 5				CUEFF	CLENTS	OF CORRE			MEANS		
OPTION	- 1 -	<u> </u>	<u> </u>		PR-TT	<u>Rest</u>					
0	0	4	12,5 -84.4	-,37		•.59	-,64	4,50 	27,75	FR.	
33	٨			•,42	,42 •,13	-1.03	-,63 •,31		15.61	<u>i</u> 6-1	2

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TEST NO 1 ACH,	MURTIN	7 ST-POP						SUBTES	7 4	- YACTS	BPCEDBUBIR/	101701	
178h Nunber - 6				cu	erfic.	ie nta o	P- CURRE	uation		ие	AHS		
OPTION	WT	N	P	94	-8T	PB-TT	B-ST	B=TT		81	TT	•	
0 C 1	0	6 25	18.8 78.1		.50 .56	36 .48	72 .78	-,53 ,67		4,33 7,80	29,67 36,08	7 - 5	
TOTAL	•	32	401		141	-,3,	-108	-,80	an g	4,00	- 83,00		
TEM NUMBER 7				CC	effic	ients o	F CORRE	LATION	,	ME	ANB	_	
OPIION	wt	- N			+3T	PB-11	- b-01	B-77		- 61	11		
0	U	6	18.8		.65	-,62	-,94	-,89		3,50	26,33		
C 1 2 TOTAL	Ô	24 2 32	75.0 6.3		.00	.16	-,01	.32	-C	7.52	36,17 38,50		
Tek number 8	;			CC		IENTS O	r Corre	Lation		2.0	ANS	grafi (1904-1904) (C. Consider Control of Consider Control of Consider Control of Contro	
OPTION	NT	N	P	P	-51	P8-TI	B-8T	B-TT		57	TT		
C 1 2 707AU	1 0	8 3 -32	65,6 25,0 9,4	C	.52 .55 .04	52 .49 .11	73	67	C	6.05 9.50 7.33	32,10 39,87 36,67	13 - 9	
TEA NUMBER 9	,		,	- Ct	effic	ients c	F.; CONRE	-HOITAL		HE	ANS		
OPTIUN ,	#T	N	P	•	` ,:	PB-TT	B-ST	B-TT		81	TT		
.0 C 1	0	21 6	65.6 10.8		,32 ,42	-,35 ,29	41 .62	+,45 ,42	C	6,43	32.85 38,33 36,60	14 - 8	,
TOTAL	•	32							***	6.80			
TEH NUMBER 10		.		CU	EFFIC	IENTS O	F CORRE	LATION		ME	ANS	1 M P 1	
	WT	- 1 -	,	76	-67	P8-77	- B-8T	8-77	* of	<u> 51'</u>	<u> </u>	} might made as a first as a first as	
0	0	19	59,4		,43	•,32 38	54	40	· · · · ·	6,11	32,79	4. •	
2 Total	Ö	2 32	34.4		,05	-,10	.09	20		8,55 7,50	37,82	11 - 7	177

Tien Humber 12 Cuefficients of Correlation Nears 12 - 4 13 14 15 17 17 18 19 19 19 19 19 19 19	DERTAP 2.0				SUMM	ary Item	57AT1ST	ICB				PAGE 79	
UPTION AT N P PB-ST PB-TT B-ST B-ST B-TT ST TT 0 0 23 71,953527069 6.17 32.39 C 1 1 7 21,9 C .55 .53 .76 .75 C 9.71 40.86 12 -4 2 0 2 6.3 .05 .04 .09 .12 7.80 36.00 TOTAL 32 ITEM NUMBER 12 CUEFFICIENTS OF CORNELATION MEANS UPTION AT N P PB-ST PB-TT B-ST B-ST B-TT ST TT 0 0 19 59.421312739 6.58 32.84 C 1 1 9 24.1 C .38 .33 .52 .43 C 8.67 37.78 17 - 9 TOTAL 32 TOTAL 32	7667-40 3 ACH	- 4U4 [7 [1, 5 1=10	ρ				-BURTE	5 1 4-	FACTS	-upesd subtr	CTION	
OPTION AT N P Pb=ST PB=TT B=ST B=TT ST TT O O 23 71.953527069 6.17 32.39 C 1 1 7 21.9 C .55 .53 .76 .75 C 9.71 40.86 12 - 4 2 0 2 6.3 .05 .05 .09 .13 7.80 36.00 TOTAL 32 COEFFICIENTS OF CORRELATION MEANS OPTION AT N P PB=ST PB=TT B=8T B=TT ST TT O O 19 59.421312739 6.58 32.84 C 1 1 9 24.1 C .39 .33 .83 .43 C 8.67 37.78 17 - 9 2 0 4 12.522 .0236 .03 5.50 34.75 TOTAL 32	Teen anaber 11		-		CUEFF		re Cokke	lation	_		IANS		1/8
C 1 1 7 21.9 C .55 .53 .76 .75 C 9.71 40.86 12-4 TOTAL 32 CUEFFICIENTS OF CORNELATION AEANS COTION AT N P .85 .85 .85 .85 .75 .77 .77 .78 .77 .79 .79 .79 .79 .79 .79 .79 .79 .79	OPTION	1 k	N	P	Pb=ST		8=8T	y-TT		51	TT		
TOTAL 32 ITEM NUMBER 12 CUEFFICIENTS OF CORNELATION DEANS O 0 19 59.421312739 6.58 32.84		0	23		C ,55	,53	.76	.75	Ç	9.71	40,86	12 - 4	_
O 0 19 59.421312739 6.58 32.842139 33 .52 .43 C 8.67 37.78 17 - 9 28.1 C .39 .33 .52 .43 C 8.67 37.78 17 - 9 20 4 12.522 .0236 .03 5.50 34.75	TUTAL		32		·····································			 3		7,60	36,00	-	-
0 0 19 59.421312739 6.58 32.84	ITEN NUMBER 12			· • • • • • • • • • • • • • • • • • • •	CUEFF	ICIENTS (OF CORNE	LATION	*	M,E	EANS		<u></u>
C 1	COTION		—— <u>—</u>	 P	P8-87		B-6T-				- 11		
2 0 4 12.5 -,22 ,02 -,36 ,03 5,50 34,75 TOTAL 32		0	19			-,31	-,27	-,39		6,58		17 0	
		0	4 32		• • •	,02	•,36	,03		•		1/ - 9	•
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					بر ه ۱۰۰ دا سسسا کان			<u> </u>			· · · · · · · · · · · · · · · · · · ·		<u> </u>

LERTAP 2,0	PAGE 82									
EST NO 1 ACH	, MONITR	, 6k-PC)P				Subtes	T 1 GENER	AL UBJECTIV	E8
TEH NUMBER 1				COEFFI	CIENTS	OF CORRE	LATION	N	EANS	ITEM DESCRIPTIONS
OPTION	VI	· N	P		PB-TT	8-57	B-TT	87	TT	TIBI PERMITITIONS
	**		•							11
0	0	0	, 0 3, 4	.00	- 40	.00	100	.00	.00	
C 2	ĭ	25	86,2	*,35 C ,57	-,49 ,50	103	*1,16	7,00 C 13,48	9,00 33,28	Numerousness
3	0	2	6,9	*,24	-,16	•,46	-,30	10,00	26,50	Writes 0-99
4	0	1	3.4	-,41	-,25	9,97	4,60	6,00	20.00	
TOTAL		29			.00	,00	,00	,00	,00	
**************************************		1		- ARRES				······································	<u>, </u>	
ITEN NUMBER 2				CUETT	LLIENTS	OF CORRE	DATION	N Las et ybykgerek	eans .	1, 1, 1, 1
NOITAO	WT	N	р	PB-87	PB-TT	B-51	B-T?	87	TT	
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	0	- <u>0</u>	3,4	,00 + < 2 -, 29	-,29	,00 <u>: 0</u> ,693	,00 ≒. *. 70÷	00. 100 <u>€ 14:40</u>	00,87	Numerousness
c ŝ	Ĭ	24	92.0	C 49	37	71.	154		33,00	Represents 0-99
4	0	4	13.6	-, 38	-,25	., •, 60	. •,40	9,75	26,00	
TOTAL	U	29	•0	•00	•00	,00	•00	,00	.00	·
				of the second	ा हुज् ^{स्} रहा.	ஜ ்தே த்தில் நடி	A-7 (200-20)	digan da sum		Sugartine Sign
ITEN NUMBER 3			14 . P. 15	COEFF	CIENTS	OF CORRE	HOLTAL	The state of the s	CANS .	
OPTION	NT.	N	<u> </u>		PB-TT		BOTT	51	11	88.9 4.4
. 0	0	0	. 0	.00	.00	,00	,00	.00	.00	
	1 1 V 1	1	3,4	(Via) • . 05	0,-11	2-6-114	16. Jan	14.20 × 12.00	25.00	- 38
C 2	1	27	93,1		.00	19	.14	C 12.85	31.70	Open Sentences
	0	1	3,4 3 •0'	•,11 ,00	.03	-,25	,08	11.00	33,00	Subtraction 0-9
5	Ö	Ō	.0	.00	.00	.00	,00	.00	.00	•
TOTAL		29	r gair agair	1 at 60		THE CONTRACT				
				The second secon	3 (1)	8. 49.3		4304		
ITEM NUMBER 4			THE SHA	COEFF	CIENTS	of Corre			eals.	Alekak
OPTION	VT	, N	Þ	P8-67	P8=11	8-37	J=77	81	77	
	Ų		.0	,00		•10	-00-	,00	,00	Brown Colored and Colored
	1	26	89.7 3,4	48. 05	.50	. ,77	.81	C 13.27	33.00	
Ci	Ň			- U3	•,10	11	٠,23		27.00	Open Sentences
C 1	0	<u> </u>				The second		7.10	9.00	
C 1 2	0	1	3,4 3,4 ,0	-,35 -,41	•,49 •,25	*,97	 •,60	7.00 6.00	9,00 20,00	Addition 10-18

				BUHMA	RY ITE	STATIST	ICS			PAGE 83
ACH.	MONITR.	6R-PO	<u> </u>			 , ,	SUBTE	IT 1 GENER	AL OBJECTI	VES
R 5				COEFF	CIENTS	OF CORRE	<u>LATION</u>		EANS	
PTION	WT	N	P	PH-ST	PB-TT	B-8 T	B-TT	57	TT	1
0	0	0	.0	.00	,00	.00	,00	,00	.00	
1	0	3	10,3	-,15	-,42	-,26	-,71	11,33	20,67	
C 3	 i	25	86,2	.00	.00	00_	00	00	00	Problem Solving (A)
4	Ô	1	3,4	C 29	,56 -,36	.44 -,69	. 65	C 13,12	33.48	Subt-simple separating 11-15
5_	Ŏ	ō	0		.00	00	-,05	8,00	15.00	
OTAL		29	7							
6	 _			COEFF	CIENTS	OF CORRE	LATION		EANS	
TION	WT_	N	P	PB-ST	PB-TT	B-8T	_ B-TT	8 T	TT	
					19-21	- W-W-		9.1		
0	0	. 0	.0	.00	.00	.00	.00	.00	.00	·
<u>C 1</u>	1	15	51.7	C ,56	.41	<u>,</u> 71	,52	C 14,47	35,00	
2	0	3	10,3	-,15	-,12	-,26	-,21	11.33	28,33	Problem Solving (A)
3	ŏ	5 6	17.2	-,23	-,10	-,34		11,20	29,60	Subt-comparison 0-99
- 3	- ŏ		20.7	-,37	-,32	-,52	<u>~,46</u>	10.50	26,00	
TOTAL	•	29	••	,00	•00	,00	• 00	,00	,00	i
R 7				COEFF	CIENTS	OF CORRE	LATION		EANS	
PTION	WT	N	P	PB-57		B-57	9-TT	81	TT	
		-	·					91	**	
0	0	0	.0	00	00	,00	.00	.00	,00	,
1	0	0		.00	<u>, 50</u>		•00	5.00	,00	-
2	0	• 5	17,2	-,20	28	-,29	. *.41	11,40	26,20	Order, Place Value
C 3	0	19		C ,36	. 23	,46	. ,30		33,00	Ordering 0-99
Š	Ŏ	5	17.2	-,26	+,02	-,38	-,02	11,00	31,20	_
TOTAL	. •	29	• •	.00	•00	•00	•00	•00	,00	. •
										
		• .:				*				
				COEFFI	CIENTS	OF CORRE	LATION	Addition 1	EANS	
H 0	<u>:</u>									
	WT	N	P		PB-TT	B-81	B-TT	5 T	TT	
PTION 0		N	,0	PB-ST	TT-89	.00	+00			- galant
PTION 0 1	WT 3	N 8	27.6	PB-ST	.00 .37	,00	.00	,00 14,37	.00 36,75	
PTION O i C 2	3 0 1	0 8 4	27.6 13.8	PB-ST .00 .32 C .09	.00 .37	,00 ,43 ,15	.00 .49	.00 14,37 C. 13,50	.00 36.75 31.50	Order, Place Value
PTION O 1 C 2	3 0 1	0 8 4 2	27.6 13.8	PB-ST .00 .32 C .09	.00 .37 00	.00 .43 .15	.00 .49 00	.00 14,37 C 13,50 7,50	36,75 31,50 13,50	Order, Place Value Place Value 0-99
PTION O i C 2	3 0 1	0 8 4	27.6 13.8	PB-ST .00 .32 C .09	.00 .37	,00 ,43 ,15	.00 .49	.00 14,37 C. 13,50	.00 36.75 31.50	Order, Place Value



				BUNNA	RY ITEM	BTATIST	CB		les d'	PAGE 84
TEST NO 1 ACH,	MONITR,	6R-POP				,	Subtes'	T 1 Gf	OBJECTIV	E8
ITEM NUMBER 9				COEFFI	CIENTS O	:) f corre	LATION		6 p i	
OPTYON	WT	N	P	PB-ST	P8+TT	B-61	8-TT	57	TT	'
UP110A	37.	N 	r							•
Ó	0	0	,0	,00	.00	,00	.00	,00,	,00	
c 2	7	28		C .41	25	.78	.48		31,93	Sentence Writing (A)
3	-		3,4	-,41	-,25	-,97	•.60	6,00	20,00	Add-part part whole 11-15
4	Ç	0	•0	,00	.00	. ,00	,00	.00	•00 An	
TOTAL	·	29	,0	.00	,00	,00	•00	,00	,00	
			•							;
ITEN NUMBER 10		الثباء ميده ميدر		COEFF	CIENTS (OF CURRE	HOTTON		KANS	Long to the second
OPTION	WT .	N	P	PB-81	PB=TT	B-57	B-TT	87	TT	
0	6	0	,0	,00	,00	.00	.00	•00	. 00	
1	Ö	2	6,9	-,15	-,41	-, 29	-,77	11.00	18,50	— Contanto Unitalia (1)
2	0		17.2	-,31	• ,23	¥,46	•,33	10,60	27,20	Sentence Writing (A) Subt-simple separating 0-99
C 3	1	21	72,4 3,4	C .47	,57 -,36	.63 69	-,15	C 13.67	34,57 15,00	#
5	 -		,0	.00	-100	.00	.00	,00	,00	
TOTAL		29	•	·	•		•			•
ITEM NUMBER : 11	,	•	. 1	COEFF	ICIENTS (OF CURRE	LATION		IEANS	
ITEM NUMBER 11	· ·		. 1	. ,	ICIENTS (ieans	
ITEM NUMBER 11 OPTION	WT	- N	P	. ,					ieans TT	
	WT 0	N	P .0	PB-87	PB=TT	B-57	BrII	81 ,00	TT ,00	
OPTION	_	7	6,9	P8-8T .00	PB=TT .00	6-87 .00	,00 •,30	,00 10,50	.00 26,50	
OPTION 0	_	15	6.9 51.7	,00 -,20	PB=TT .00	.00 37	.00 •.30	87 .00 10,50 13,20	,00 26,50 33,60	Sentence Writing (B)
OPTION	_	7	51.7 31.0	,00 =,20 ,15 C ,22	.00 .00 .16 .25	.00 37 .10	.00 •.30 .31	.00 .00 .10,50 .13,20 .13,78	.00 26,50 33,60 32,89	
OPTION 0 1 2 C 3 4 5	_	15 9 3 0	6.9 51.7	,00 -,20	PB=TT .00 .10 .25 .11	.00 37	.00 •.30	87 .00 10,50 13,20	,00 26,50 33,60	Sentence Writing (B)
OPTION 0 1 2	_	15	6.9 51.7 31.0	.00 20 .15 C .22	PB=TT .00 .10 .25 .11	.00 37 .10 .29	.00 •.30 •.31 •.14 •.74	87 ,00 10,50 13,20 C,13,78 9,00	.00 26,50 33,60 32,89 20,33	Sentence Writing (B)
OPTION 0 1 2 C 3 4 5	_	15 9 3 0	6.9 51.7 31.0	.00 20 .15 C .22	PB=TT .00 .10 .25 .11	.00 37 .10 .29	.00 •.30 •.31 •.14 •.74	57 ,00 10,50 13,20 C,13,78 9,00	.00 26,50 33,60 32,89 20,33	Sentence Writing (B)
OPTION 0 1 2 C 3 4 5	_	15 9 3 0	6.9 51.7 31.0	00 -,20 -,15 C ,22 -,41	.00 16 .25 .11 43	.00 37 .10 .29 69	.00 •.30 •.31 •.14 •.74 •.00	87 ,00 10,50 13,20 C ,13,78 9,00	.00 26,50 33,60 32,89 20,33 .00	Sentence Writing (B)
OPTION O 1 2 C 3 4 5 TOTAL	_	15 9 3 0	6.9 51.7 31.0	00 -,20 ,15 C ,22 -,41 ,00	.00 16 .25 .11 43	.00 37 .10 .29 69	.00 •.30 •.31 •.14 •.74 •.00	87 ,00 10,50 13,20 C,13,78 9,00	.00 26,50 33,60 32,89 20,33 .00	Sentence Writing (B) Subt-join-addend 11-15
OPTION O 1 2 C 3 4 5 TOTAL	0 0 0 1 0 0	2 15 9 3 0 29	6.9 51.7 31.0 10.3 .0	00 -,20 ,15 C ,22 -,41 ,00 COEFF	PB-TT .00 .16 .25 .11 .43 .00 ICLENTS	00 -,37 ,10 ,29 -,69 ,00 OF CORRI	8-TT .00 30 .31 .14 74 .00	87 .00 10,50 13,20 C 13,78 9,00 .00	71 .00 26,50 33,60 32,89 20,33 .00	Sentence Writing (B) Subt-join-addend 11-15
OPTION O 1 2 C 3 4 5 TOTAL	0 0 0 1 0 0	2 15 9 3 0 29	6.9 51.7 31.0 10.3 .0	00 -,20 ,15 C ,22 -,41 ,00 COEFF	PB-TT .00 .16 .25 .11 43 .00	00 -,37 .10 .29 -,69 .00 OF CORRI	B-TT ,00 •,30 ,31 ,14 •,74 ,00 B-TT	81 .00 10,50 13,70 C. 13,78 9,00 .00	71 .00 26,50 33,60 32,89 20,33 .00	Sentence Writing (B) Subt-join-addend 11-15
OPTION O 1 2 C 3 4 5 TOTAL	0 0 0 1 0 0	2 15 9 3 0 29	6.9 51.7 31.0 10.3 .0	00 -, 20	PB-TT .00 .16 .25 .11 .43 .00 ICLENTS PB-TT .00 .34	.00 37 .18 .29 69 .00 OF CORRI	B-TT .0030 .31 .1474 .00 B-TT .0043	81 .00 10.50 13.20 C 13.78 9.00 .00	26,50 33,60 32,89 20,33 .00 *EANS	Sentence Writing (B) Subt-join-addend 11-15 Sentence Writing (B) Subt-part part whole-addend
OPTION O 1 2 C 3 4 5 TOTAL ITEM NUMBER 12 OPTION O 1	0 0 0 1 0 0	15 9 3 0 29	6.9 51.7 31.0 10.3 .0 P	PB-87 .0020 .15 C .2241 .00 PB-87 PB-87	.00 16 .25 .11 43 .00 ICLENTS PB-TT	00 37 .10 .29 69 .00 0P CORRI B-8T	B-TT .000 .31 .14 .74 .00 B-TT .00 .43 .59	87 .00 10,50 13,20 C,13,78 9,00 .00	717 .00 26,50 33,60 32,89 20,33 .00 MEANS 77 28,43 35,79	Sentence Writing (B) Subt-join-addend 11-15 Sentence Writing (B) Subt-part part whole-addend
OPTION O 1 2 C 3 4 5 TOTAL ITEM NUMBER 12 OPTION O 1	0 0 0 1 0 0	15 9 3 0 29	6.9 51.7 31.0 10.3 .0 P	PB-87 .00 -,20 .15 C ,22 -,41 .00 CORFF PB-87	PB-TT .00 .16 .25 .11 .43 .00 ICLENTS PB-TT .00 .34 .47	00 -37 -10 -29 -69 -00 0F CORRI B-ST	B-TT .0030 .31 .1474 .00 B-TT .0043	87 .00 10,50 13,20 C,13,78 9,00 .00 .00	.00 26,50 33,60 32,89 20,33 .00 HEANS	Sentence Writing (B) Subt-join-addend 11-15 Sentence Writing (B) Subt-part part whole-addend

LERTAP	2,0		1		SUNMA	RY ITEM	STATIST	1C8		 		PAGE 85	اجب وبالله عرواناة
test no	1 ACH.	MONTER	6R-PO	<u> </u>	·			AUBTES	IT 1. GENI	RAL OBJEC	TIVES_	**************************************	
TTEN NII	4BER 13	•			7022 8 1	ATTUMB :	ne sahne	. Amtau		UMAMA			182
	TOUR 13			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<u> </u>	CAUNTA	of Corre	UATIUN		MEANS .			N
	OPTION	WT	N	P	PB-5T	PB-TT	8-8T	B=TT	ST	77		1	
	0	0	0	10,3	00. RQ.=	,00	.00	,00	,0(····		
·	<u> i </u>	0	i	3,4	۳۵۷۰۰ باره	,01 03	-,14 -,25	.01	12.00			Problem Solving (B)	
	C 3	1	24	92,8 (,07	,29	,10	C 13,0	31,79		Subt-join-addend 11-15	
	5	0	1	3,4	• • • • • • • • • • • • • • • • • • • •	•,18	•,40	-,44	10,00				
	IOTAL	<u> </u>	29	A.Y		<u> </u>	<u> </u>	AVV		00		1	-
TOPU NII	BER 14				Antono							<u> </u>	
1104 401	JDEN 14				COEFFI	CLENTS	OF CORRE	LATION	o Marine	MEANS	:		
	OPTION	WT	H	p	PB-87	PB-TT	8-67	8-11	8 T	TT_			
	0	0	0	,0	,00	,00	,00	•00	,0(,00		,	
	C 1	1	19	62,1 (51	,24	,65	_,31	C 14,00	33,17			
	7	0	4 0 ·	13,8	*,10 ,00	,03	15	.05	12,0			Problem Solving (B) Add-simple joining 0-99	
	4	Ŏ	i	24,1	•,50	-,30	•.68	,00 -,41				unnametre lorured 0-33	•
	5 Total	0	29	,0	,00	,00	.00	,00	,0(,	,
·					.,								
ITEM NU	HBER 15			'	Coeffi	CIENTS	OF, CORRE	LATION	o Ar I Comp. () Take the Comp. () Take the Comp. ()	MEANS	ika Kanton kingga Hijophera Tig		
	OPTION	WT	H	P	PB-61.	PB-TT	8-87	B-TT	5 T	TT			
	0	0	0	.0	,00	,00	,00	•00	00	,00			
'	<u> </u>	1	. 17	50,6	. , , 23	,19	29	.24	'C 11,3	32,94			-
	7	0	3 5	10.3 17.2	-,30	-,16 -,08	*.51	*.28	10.0			Algorithms	
	1	0		13,8	*,16	-,05	-,14 -,25	12	13,40 11,50			Addition Algorithm	
	5	. 0	0	10	,00	.00	,00	,00	,0(•	
	TOTAL		29			;	•		svýc se	 	<u> </u>		
ITEN NU	MBER 16				COEFFI	CTPUTS		iliga de la como de la		MPANE			
			<u> </u>				at Anus	MUSEUM.		PEANO		1	<u> </u>
	OPTION	TW	N	P	PB-8T	PB-IT	B-5T	B=TT	87	TT			
	0	0	0	,0	,00	,00	.00	•00	,00				
	1 2	· 0	10	34,5 13,8	•,06 •,48	•,03	•.08	-,04	12,5			Manufelina	
71	<u> </u>	i	8	27.8	C ,49	•,34 ,39	•,75	•,54 ,52	714			Algorithms Subtraction Algorithm	
71	4	. 0	7	24,1	-,06	-,09	•,08	-,12	12,4	3 30,14		-	70
ERIC _	TOTAL		29	,0	,00	,00	.00	•00	.01	00,00		4	72_
			67		· .		á việt					•	

TEST NO 1 ACH. MONITE, 68-POP

SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 17		يستخصه المجانات		COEFFI	CIENTS C	r CORRE	LATION	ME.	IANS	
OPTION	MI	Ħ	P	PB-8T	P8-77	8-87	B-TT	81	77	
0	0	1	3,4	- 36 - 00	.00 •,49 .00	.00 13	.00 -1.16	.00 7,00	9.00	
() ()	0	20	96,6 C	.35	.00	.67	.00	,00 C 12,96 .00	,00 32,32 ,00	Counting On 9-18
TOTAL		29		مرشقال جيجم عصدا						- 111

TARN MONDEN TO				COLFF	CIENTS (OF CORRE	EANS			
OPTION	VT	N.	<u> </u>	PB-81	P8-77	8-67	8-77	87	77	
C 1	1	19	65.5 C	,00 ,55	55	.00	.00	.00 C 14,00	,00 35,00	
3	0	7	0,9 24,1 3,4	*,48 *,32 *,05	-,81 -,24 -,03	•.43 •.43	91.10	7,50 11,00 12,00	12,00 27,86 30,00	Counting Back 9-18
TOTAL	0	29	0	,00	,00	• 90	.00	,00	.00	, , , , , , , , , , , , , , , , , , ,

ITEM NUMBER 19				COEFF	CIRNIS (r Corre	ATEON	ME	ANS /	The state of the s
UPTION	41		7	PI-ST	75-17	J-57	6-11	57	17	14 (14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
0	0	0	.0	,00	,00	.00	.00	,00	,00	
2	0.	5 19	3,4 17,2 65,5 C	•,43 •,43	•.19	96.03 9.64		9,00	35,00	Counting Back 18-31
S JAIOT	0	0 29	13.0	•.57	.00	,00	.00	7,25 ,00	22,75	'

Centap 2.0	<u> </u>		ı	SUNN	ARY, TYEN	PANTE	ICS	Salar Market	i Marian		PAGE 88
TEST NO 1 ACH,	HONITA	6R-P0	7				SUBTE	ST 2	<u>Sentei</u>	ICE WRITING	PREE RESPONSE
ITEM NUMBER 1	,, 1			COLFF	ICIENTS	OF CORRE	LATION	···	ME	ANS .	ITEM DESCRIPTIONS
OPTION	NT	N	P	PB=87	PB-TT	8-87	8-77		87	77	
C 1 2	0 1 0	0 14 15	,0 40,3 51,7	,00 C ,85 -,85		.00 1.06 -1.06	.00 .61 61	C	,00 3,64 1,80	.00 35.93 27.40	Sentance Writing Subt-comparison 11-15
TOTAL		29				· ·		94.			• •
ITEM NUMBER 2	·			COEFF	ICIENTS	OF CORRE	LATION		HI	BNAS	······································
OPTION	٧T	N	P	P8-8T	PB=17	8-6T	B=TT		5 T	TT	
, C 1	0 1	2 25	6,9 86,2		•,23 ,17	•,81	•,45 ,26	C	1,00 2,92	24,00 32,12	Sentence Writing Add-part part whole 0-99
TOTAL	0	29	6,9	+,30	•,00	. ••57	•,00		1,50	31,50	- una harr harr attors 0-33
ITEM HUNBER 3				COEFF	icients	OF CORRE	LATION	A PARTY	N	ANS	
OPTION	WY	N	P	P8-81	PB=TT	6-57	B-TT		81	77	· · · · · · · · · · · · · · · · · · ·
0	0 ,	1	3,4	,05		,13	,34		3,00	38.00	Sentence Writing
C 1 2 TOTAL	0	11 17 29	37,9 50,6	61 •,82	•,53	1,04 •1,04	.62 -,68		3,82 1,94	37,00 27,59	Bubte-foir-addend 0-00
ITEN NUMBER 4	·			Coeff	ICIENTS	OF CORRE	LATION		M	LANS	
DPTION	NT	N	P	PB-81	PB-TT	8-87	B-17		BT .	17 2	Company of the Control of the Contro
0 C 1 2	0 1 0	0 28 1	96,6 3,4	c ,47		.00 .90 -1.12	.00 .56 70	C	.00 2.79 .00	,00 32,00 10,00	Sentence Writing Add-simple joining 11-15
TOTAL		29	w. t	A. Politik	1.500 (1.50	en green van de lijke en green van de lijke	lin describe	and the second	સંદર્શાહિક	ali en Andrew State (18	

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LERTAP 2.0				SUMMA	RY ITEN	STATIST	ICS		4 .		PAGE 90
TEST NO 1 ACH,	MONIT	R, 6K-POP					SUBTES	T_3	FACTS	SPEEDADDI	TION
ITEM NUMBER 1				COEFFI	CIENTS	OF CORRE	LATION	,	<u> </u>	EANS	ITEM DESCRIPTIONS
OPTION	WT	N	þ	PB-81	PB-TT	8-51	B-TT		8T	77	
0 C i 2	0 1 0	27 1	3,4 93,1 3,4	•,22 •,53 •,51	-,25 ,53 -,49	*,52 ,92 -1,23	-,60 ,92 -1.16	C	5.00 9.07 .00	20,00 32,78 9,00	1+5
TOTAL		29						e de la Se			and the second s
ITEM NUMBER 2			·	CUEFFI	CIENTS	OF THE		17 1		CANS	
OPTION	WT	N	P	PB-ST	PB-17	8=6T	Bett		87	77	
0 C 1	0	3 24	10.3		-,12 ,46	.72		C		20.33 33.33	3+2
TOTAL		29 29	6,9	*153	-,53	•1,00	•1.01		2,50	14,50	
ITEN NUMBER 3				COEFFI	Cients	OF CORRE	LATION	25 NO		EANS	The second secon
UPTION	WT	N	Y	P8-81	PB-TT	B=51	B-TT	WA TOWN	5 T	TT	SVell E
0 C 1 2 Total	1 0	0 20 1 29	96,6 3,4	,00- C ,51 -,51.	149	.00 .99	,94	C. etc.	.00 8.93 .00	,00 J2,32 9,00	4+4
ITEM NUMBER 4			, 	COEFFI	CIENTS	OF CORRE	LATION	A 445.1	M	EANS	
OPTION	WT	N	P	į.	PB-TT		·	r post sa	81	TĪ	
0 C 1 2	0 1 0	5 21 3	17.2 72.4 10.3	C ./1 -,67	•,2/ ,69 •,68	*,43 ,94 =1,14	-140 ,92 -1,15		10,00 2,33	26,40 35,24 14,00	3 + 6
TOPAG		1 29 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				*****					ing the state of the second se
ITEM NUMBER 5		-				OF CORRE				eans	
OPTION	WI		<u> </u>		P8=TT	B-8T	8-11		81	TT	
C 1	1	71	13,8 82,8		•,44 ,63	. 97	-,68 ,92		5,00 9,50	22,00 34,04	4 + 3
TOTAL	<u> </u>	29	316	*,51	*,49	-1,23	*1,16		,00	9.00	185
277			19	A P. Strand			A Activ	the out of	Sandy by	and the state of t	

	· 												
LERTAP 2,0				SUMM	ARY ITEM	STATIST	ICS				,	PAGE 9	1
TEST NO 1 ACH.	MOVITR	6R-PD	<u> </u>		7 170		SUBTES	11	<u> Pacts</u>	SPEED==ADD	ITION		
ITEM NUMBER 6				COEFF	ICIENTS	OF CORRE	<u>LATION</u>		ME	ANS			186
OPTION	HT	N	P	PB-ST	PB-TT	B=ST	B-TT		5 T	TT	1		
O C 1 2 Total	0 1 0	1 27 1 29	3,4 93,1 3,4	-,34 C ,61 -,51	,61	*,80 1,07 -1,23	-,85 1,06 -1,16	C	3,00 9,15 ,00	15,00 32,96 9,00	- Aring	6 + 2	
ITEN NUMBER 7			<u> </u>	COEFF	ICIENTS	OF CORRE	LATION	·	ME	ANS >	. 1		
OPTION	WT	N	P	PB-ST	PB-TT	B•ST	B-TT		ST	77			
C 1 2 Total	0 1 0	13 14 2 29	44,8 48,3 6,9	C ,68	,53	-,58 ,86 -,84	-,36 -,66 -,92	<u>C</u>	7,00 10,86 3,50	20,77 36,29 16,00	.	5 + 8	1
ITEM HUMBER 8				COEFF	ICIENTS	OF CORRE	LATION		ME	ANS		*** .	
OPTION	WT	N	P	PB-81	PB-TT	8-37	Batt		ST	11	<u> </u>		
C 1 2 Total	0	14 14 1 29	48,3 48,3 3,4	•,58 C ,77 •,51	.73 -,49	•1,23	-,69 ,92 -1,16			26,50 38,14 9,00		6+9	
ITSM NUMBER 9			,	COEFF	ICIENTS	OF CORRE	LATION		Me	ANS			
OPTION	NT.	N ST	P	PD-ST	PB-TT	8-57	B-71	V CV	87	TT			,
0 C 1 2	0 1 0	4 24 1	13,8 02,8 3,4	c .58		*,57 ,84 *1,23	-,45 ,72 -1,16	C	5,75 9,46	25,25 33,50 9,00		9 + 3	· · · · · · · · · · · · · · · · · · ·
TOTAL		29				, ,					:		
ITEM NUMBER 10				COEFF	CLENTS	OF CORRE		int.	11111	ANS		Manganan and Manganan and American State of the Control of the Control of the Control of the Control of the Co	- Laure
OPTION	WT	N	P	P8-8T	PB-TT	8-87	0-77	,	18	77			
0 C 1 2	0	13	44,8 44,8 10,3	c ,70	•,36 •,36	•,55 .00 •,72	-,46 ,73	C	7,00 11,08 4,67	28,00 37,15 22,33	*	5 + 7	
270 TOTAL	· · · · · · · · · · · · · · · · · · ·	29	· · · · · · · · · · · · · · · · · · ·	.	The Marian				·		-	,	280

entap 2.0				SUNM	ARY TYEN	STATISTI	CS			PAGE 92
ESY NC 1 ACH.	HONITR,	6R-POP					aubtes1	3 FACTS	SPEEDADDITI	ON
TEM NUMBER 11		'		Coeff	ICIENTS (of Correl	ATION	ME	ANS	
OPTION	MI	N	P	PB=ST	PB-TT	8=8T	B=TT	. St	77	
0 C 1 2	0 1 0	10 14 5	34,5 48,3 17,2	C .79	.73	•.77 .99 •.43	67 .92 47	6,00 C 11,21 6,60	25,30 38,14 25,40	8 + 9
TUTAL		29								
LEN NANDEH 13	· <u>·</u>			COEFF	ICIENTS (F CURREL	ATION	AE	ANS	
OPTION ·	WT	N	P	PB-ST	PB-TT	B-8T	8-17	8T	77	
C i	0	8 20	27,6 69,0	•,73 C ,74	.60		•,79 ×	4,87 C 10,20	23,12 35,05	3+8
TOTAL	٧	29	3,4	-,10	4,08	•,23	-,18	7,00	28,00	,
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ADMINISTRATION TIME: 56

2.0					SUNMA	RY ITEN	STATIST	ICS				PAGE 94	
1	ACH.	MONITR,	6R-POP			·		SUBTES	T 4	FACTS	BPEEDSUB	TRACTION	
MBER	1		——,		COEFF	CIENTS	OF CORRE	LATION		ME	ANS	ITEM DESCRIPTIONS	188
OPTI	EUN	WT	N .	P	PB-ST	PB-TT	B-8T	8-TT		8 T	TT	•	
101	0 1 2	0 1 0	27 1 29	3.4 93.1 C 3.4	-,32 ,54 -,44	-,36 ,61 -,49	76 .95 -1.04	85 1.06 -1.16	C	2,00 7,93 ,00	15.00 32.96 9.00	5 - 1	
NUER					COEFF	CIENTS	OF CORRE	LATION	· - ·'-	ME	ANS		
OPT	ION	WT	N	P	P8-8T	PB=TT	B-ST	B- T T		ST	TT		_
	0 1 2	0 1	3 22	10.3 75.9 C	-,47 ,75 -,52	•,41 ,59	79 1.03	69 .80	ं ८	3,00 8,82 3,25	21,00 34,41 23,50	9 - 2	
T01	LAL		29		·	·				•			
MƏER	3	,			COEFFI	CIENTS	OF CORRE	LATION		ME	ans		
OPT		WT	M	P	P8-5T	PH-TT	B-ST	B-TT	<u></u>	5T	TT	, and the second	
	O 2 TAL	0	3 25 1 29	10,3 86,2 C 3,4	-,29 ,49 -,44	49	31.D4°	-1.16	199	4.67	29,00 32,72 9,00	8 ~ 7	
MBER	4				COEFF	CIENTS	OF CORRE				ANS		
OPT	ION	MT.	N	P	P8-8T	PB-TT			774	81	TT		
	0 1 2	0 1 0	21	13.8 72.4 C 13.8	-,30 ,49 -,33	-,29 .38 -,21	48 .66 52	-,45 ,51 -,32	C	5,00 8,43 4,75	25.25 33.57 27,00	5 - 3	Garden-espera
10	TAL		29							tsiest jake.	r		
MBEH	5				CUEFF	CIENTS	OF CURRI		area in	NE	ANS	Service (September 2015) and the service of the ser	<u> </u>
OPT	ION	WT	N	P	PB-ST	PB-TT	B-5T	B-TT		51	TT		
. (0 1	0 1	25 3	3,4 86,2 C	-,38 -,52 -,36	,31	.79	. 47	C	1.00 8.12	32,60	7 - 6	- 284
TO	TAL	•	29	4413	-130	-,32	•.62	54		4,00	23,33		

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SUMMARY ITEM STATISTICS

PAGE 95

ST NO 1 ACH.	MONIT	R. GR-PU)P			سنيست ورينس	SUBTEST	4 FACTS	SPEED==SUBTE	RACTION
EM NUMBER 6		•		COEFF	CIENTS I	of Corre	LATION	M	CANS	
OPTION	#T	N	P	PB-ST	PB=17	8-87	B-TT	81	77	,
C 1 2	0 1 0	7 20 2	24,1 69,0 6,9	*,58 C ,81 *,50	•,43 ,64 •,45	-,79 1,06 -,96	*,59 ,84 C	4,14 9,20 1,50	24.86 35.30 17.00	8 - 5
TOTAL		29						1944) Lister 1961 1		
EM NUMBER 7	"			COEFF	CIENTS	F CORRE	LATION	, M	CANS	And the state of t
OPTION	WT	N	P	P8-87	P8-77	8-8T	B-17	87	TT	
0 C 1 2	1 10	12 16	41,4 55,2 3,4	C		-1.04	56 .77.20 -1.16	5,50 9,38	26,92 36,37 9,00	14 - 7
TOTAL		29							' 1	
EN NUMBER 8				Coeff	CIENTS.	DP CORRE	LATION	MI	EANO	1
OPTION	WT.	N	₽	PB+81	PB-II	8-57	B-17	51	TT	,
0	0	9	31.0	-,49	•,37	•,64	#49	5,11	26,67	
C i 2 Total	Ö.	5 29	51.7 17,2	C .76 40	-,44	60		4,60		12 - 5
EN NUMBER 9				COEFF	icients (OF CORRE	LATION	M	EANS	i e
OPTION	w "	H.	P	PB•ST	P8-TT	B-81	B•TT	81	EANS TT	
0 C 1 2	0 1 0	11 13 5	37.9 44.8 17.2	•,40 C ,58 •,26	•.36 .47 •.16	•,50 ,73 •,39	",45 ,59 C	5,82 9,54 5,60	27,55 36,09 29,40	11 ~ 8
TOTAL		2'	آ ئىروشو <u>ل</u> يە		alas (Alas)	***		en en		
EN NUMBER 10				COAFF	CIENT8	OF CORRE	LATION		EAN8	Confidence of the second second second second second second second second second second second second second se
OPTION	WI	N	P	PB-ST		B-ST	B•11	87	TT	•
0 0 1	0	15 12	51.7 41.4	.57	, 46′	• ,72	70°,58	5,67	_	13 - 7
2 Total	0	29	. 6,9	-,25	•,28	-,48	•,54	4,50	22,50	64 - 1

ERTAP 2.0					SUHMA	RY ITEM	STATIST	ics				PAGE 9	6
EST NO 1	ICH, MOI	IIR, 6R-P	OP					SUBTES	T 4	FACTS	SPEEDSUBTRAC	TION	
TEN NUMBER	11				COEFFI	CIENTS C	F CORRE	LATION		ME	ANS		190
09710	ON #1	t N	P		P8-ST	PB-TT	a-\$1	B=TT		ST	11	·	
C	2 () 9 1 13) 7	31,0 44.8 24.1	C	-,30 ,48 -,23	,43	-,40 ,60 -,31	•.41 .54 •.22	C	6,00 9,15 6,14	27,44 35,69 29,00	12 - 9	وسيب
TOT	16	29											
TEN NUMBER	13		•		COEFF	CIENTS C	F CORKE	LATION		MC	ANS		
OPTI(ON WI	<u> </u>	P		PB-ST	PB-TT	8 - 57	B-TT		ST	TT		
<u>.</u> c	0 0) 16 1 7	35,2 24,1	C	,55	•.28 .46	•,33 ,75	•,35 ,64	C	6,69 10,57	29,31 30,71	15 - 8	
TOTA	2 7 16	29	20,7		-,26	*,15	-, 36	-,21		5,83	29,00		
		· · · · · · · · · · · · · · · · · · ·			<u>_</u>			• •					
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ERTAP 2.0			· · · · · · · · · · · · · · · · · · ·	NNUS	ary Ite	M STATIS	ICS TO		-	Constitution of the second	PAGE 99
EST NO 2 ACH.	MONI	TR. 65-	POP	·			SUBTE	S7 1	GENER	AL OBJECTIV	P8
TEH NUMBER 1				COEFF	<u>ICIENTS</u>	OF CURRE	LATION		M	EANS	ITEM DESCRIPTIONS
OPTION	ψT	N	Р		P8-II		B=TT		ST	ŤŤ	-
0	0	0	, ,			-	.00	<u> </u>	.00	,00	
C 1	1	12	44,4	C .42			.41 .11		14,00	35,92	· 10
3	0	9	33.3		02		.03		14,67 11,56	34,33 33,11	Numerousness Writes 0-99
4	0	3	11.1	-,61	-,62	-1.02	-1,03	S. 1.	6,67	18,00	######################################
TOTAL	<u></u>	27	0	00	.00	.00	00	<u>. </u>	.00	00	
TEN NUMBER 2				A na na	- A - Mu					<u> </u>	:
TEN HUNDER &				CUEFF	ICIENTS	OF CURRE	LATION		MI	EANS	
OPTION	MI	N	p ·	PB=ST	P8-T1	B=ST	8-77	(6) (1) (1) (1) (1)	<u>87</u>	TT	
0	0	0	.0	.00	.00	.00	,00	•	.00	.00	
1	0	0	.0	,00	. ,00	.00	,00		00	.00	
C 2	1	25	92.6		,61	11 m 1	1.05	, C	12,96	34,26	Numerousness
i	Ŏ	2	7.4	.00 55	,00 •,61	-1.02	•1.15		6,00	14,50	Represents 0-99
5	0	0	.0		,00	.00	,00		,00	.00	i
TOTAL		27									
TEN NUMBER 3			,	COEFF	CIENTS	OF CORRE	LATION		, NI	ans	
OPTION	WT	N		PB-8T		8-6T	Boll	The state of the s	ST	TT	
0	0	0		.00	,00	,00	•00		,00	,00	. :
Ci	1	20		C 1082 138	,30	. 52	A 40		13,20	34.30	
3	0	5 1	18.5 3,7	•.18 •.03	-,00	•, 26.	.00	S. W. Marke	11,20	32,80	Open Sentences
1	0	1	3,7		-,62	-1,16	#1,45	(1527) 4139 (S.)	4.00	6.00	Addition 0-9
5 TOTAL	• •	0 27	•0	.00	,00	.00	.00		.00	.00	8
Pru Miliado .		•						is ditt		ANS .	
TEM NUMBER 4				COEPE	CIENTA	OFECORRE	LATION		Miller W	ANS CONTRACT	
option	WT	H	P	PB-8T	PB-TT	8=8T	B=1T	•	81	TT	
0	Ū	0	,0	,00		.00	.00	, (V, (V)	.00	•00	man at the second secon
	1	23	85.2 .0		,61	93	191	C	13,30	34,96	·γ.w
C 1 2	•	<u>v</u>		.00	,00	.00	.00		00	.00	Open Sentences
2	0	1	.3.7	•.26	0.18	01	9.47		R.DO	25 nn	Culturation 10 10
2	0	3	.3,7 11,1 0	•,26 •,54 .00	-,18 -,58 ,00	61 90 .00	•,42 •,96	•	8.00 7.33	25,00 19,00	Subtraction 10-18

ERIC 89

DEPTION VI N P PS-ST PS-T S-T TT		•									
TIEN NUMBER S COEFFICIENTS OF CORRELATION NELNS S	LERTAP 2.0	-			SUNMA	RY ITEM	STATIST	ics		-	PAGE 100
OPTION WT N P PB-ST PB-TT B-ST B-TT ST TT 0	TEST NO 2 ACH	NONIT	R, 68-PO	P .		·····		SUBTES	T 1 GENER	AL OBJECTI	VES
OPTION WT N P PB-ST PB-TT B-ST B-TT ST TT 0	TTEN NUMBER 5				Corre	CIENTE	n e Anboo	u attou	u	Erve	19:
C 1 23 85,2 C 31 1,25 8.46 .38 C 12,87 33,70 2 0 3 11,1 -19 -17 -17 -11 -29 10,67 28,67 Problem Solving (A) 3 0 1 3,7 -28 -18 -51 -42 8,00 22,00 Comparison 11-15 4 0 0 .0 .0 .00 .00 .00 .00 .00 .00 .00				-	COULT	CTENTO	OF CURKE	UNITUR		EANS	N
C 1 1 23 85,2 C .31 .25	OPTION	WT	N	P	PB-ST	PB-TT	B=8T	B=II	ST	TT	
1	0		0				, 00				
1	6.1	1									Books on Bush 1 445
TITEM NUMBER	3	0								25,00	
TITEN NUMBER 6 COEFFICIENTS OF CORRELATION DPTION NT N P PB-ST PB-TT 8-ST 8-TT ST TT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4	0	Ŏ								combarraou 17-13
OPTION WT N P PS-ST PS-TT B-ST ST TT	5	0	0								
OPTION NT	TUTAL		27				_				
O	ITEM NUMBER 6				COEFFI	CIENTS	OF CORRE	CATION	×	EARS	
O	nPTIAN	ur.	u	Ð	B0c#	55_# *	00 78	. D_##			
1	. 0711011		<u></u>	r	L0-91	Apel1	8-51	B-TT	81	ŢŢ	
1 0 1 3,7 -,08 -,20 -,48 11,00 24,00 2 0 6 22,2 -,26 -,02 -,35 -,03 10,83 32,30 C 3 1 12 44,4 C ,48 ,40 .61 .50 10,83 32,30 4 0 8 29,6 -,26 -,33 -,34 -,44 11,12 28,50 5 0 0 ,0 .00 .00 .00 .00 .00 .00 .00 TOTAL 27 COEFFICIENTS OF CORRELATION MEANS OPTION WT N P PS-ST PS-TT S-ST S-TT ST TT 0 0 0 0 ,0 .00 .00 .00 .00 .00 .00 .00 .	0	0	0	.0	.00	.00	.00	•00	.00	.00	
C 3 1 12 44,4 C .48 .40 .61 .50 C 14.25 36,58 Add-part part whole 0-95 4 0 8 29,6 -26 -33 -34 -44 11,12 28,50 TOTAL 27 ITEN NUMBER 7 COEFFICIENTS OF CORRELATION NEANS OPTION WT N P PB-ST PB-TT B-ST B-TT ST TT C 2 1 18 66,7 C .47 .52 .61 .68 C 13,56 35,94 Order, Place Value 3 0 1 3,7 -0.08 -114 -20 -32 11,00 27,00 Ordering 0-99 4 0 4 14,8 -49 -57 -76 -38 8,50 21,25 5 0 0 .0 .0 .00 .00 .00 .00 .00 .00 .0	1	0	1	3.7	*,08	 20					
4 0 8 29.626333444 11.12 28.50 TOTAL 27 ITEM NUMBER 7 COEFFICIENTS OF CORRELATION MEANS OPTION WY N P PB-ST PB-TT B-ST B-TT ST TT 0 0 0 0 .0 .00 .00 .00 .00 .00 .00 .00	7	- 0	-								
TOTAL 27 COEFFICIENTS OF CORRELATION MEANS DPTION WT N P PB-ST PB-TT B-ST B-TT ST TT 0 0 0 0 0 0 0 00 00 00 00 00 00 00 00	U 3	7			. •						Add-part part whole 0-99
TOTAL 27 ITEM NUMBER 7 COEFFICIENTS OF CORRELATION MEANS OPTION WT N P PB-ST PB-TT 8-ST 8-TT ST TT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5	 -									<u>.</u>
OPTION WT N P PB-ST PB-TT 8-ST 8-TT ST TT 0 0 0 0 0 0 0 0 00 00 00 00 00 00 00 0	TOTAL		27	••	•	•••	,	•••	•••	•••	
OPTION WT N P PB-ST PB-TT 8-ST 8-TT ST TT O O O O O O O O O O O O O O O O O	ITEN NUMBER 7	·_			COEFFI	CIENTS	OF CURRE	LATION:	N. N. N.	eans	
O O O O O O O O O O O O O O O O O O O	OPTION	WT	N	P	PB-ST	PB-TT	B=5T	BOTT	81	<u> </u>	
1 0 4 14.8											
C 2	0	0	0								
3 0 1 3.708142032 11.00 27.00 Ordering 0-99 4 0 4 14.849577688 8.50 21.25 5 0 0 .0 .00 .00 .00 .00 .00 .00 TOTAL 27 COEFFICIENTS OF CORRELATION NEANS OPTION WT N P PB-ST PB-TT B-ST B-TT ST TT O 0 0 0 .00 .00 .00 .00 .00 .00 .00 C 1 1 2 7.4 C04 .0607 .11 C 12.00 34.50 C 1 1 2 7.4 C04 .0607 .11 C 12.00 34.50 2 3 0 6 22.2 .04 .14 .05 .19 12.67 35.00 Place Value Place Value 0-99 4 0 15 55.610291337 12.13 30.60 5 0 0 .0 .00 .00 .00 .00 .00 .00 .00 .00	7	Ų	10		•						A.1. 74
TOTAL 27 COEFFICIENTS OF CORRELATION MEANS		Ô	10							. *	
TOTAL 27	-	0									ordering 0-99
TOTAL 27 ITEM NUMBER 8	5	0	Ö								•
OPTION WT N P PB-ST PB-TT B-ST B-TT ST TT O	JATOT		27			· ·					
OPTION WT N P PB-ST PB-TT B-ST B-TT ST TT O	TÆFH NINDED A				Acres						300
291 2 0 4 14.8 .13 .21 .20 .32 13.50 37.00 Order, Place Value 3 0 5 22.2 .04 .14 .05 .19 12.67 35.00 Place Value 0-99 4 0 15 55.6 .10 -29 -13 -37 12.13 30.60 292	TICH MANDER 9				COEFFE	CLENTS	OF CORRE	HATION:		eans of the	
231 2 7.4 C04 .0607 .11 C 12.00 34.50 2 0 4 14.8 .13 .21 .20 .32 13.50 37.00 Order, Place Value 3 0 6 22.2 .04 .14 .05 .19 12.67 35.00 Place Value 0-99 4 0 15 55.610291337 12.13 30.60 5 0 0 .0 .00 .00 .00 .00 .00	OPTION	WT	N	P	PB=ST	PB-TT	B-5T	B-TT	. 87	TT	
231 2 7.4 C04 .0607 .11 C 12.00 34.50 2 0 4 14.8 .13 .21 .20 .32 13.50 37.00 Order, Place Value 3 0 6 22.2 .04 .14 .05 .19 12.67 35.00 Place Value 0-99 4 0 15 55.610291337 12.13 30.60 5 0 0 .0 .00 .00 .00 .00 .00	•	U	0	•0	.00	,00	,00	. 00	.00	.00	,
231 2 0 4 14.8 .13 .21 .20 .32 13.50 37.00 Order, Place Value 3 0 6 22.2 .01 .14 .05 .19 12.67 35.00 Place Value 0-99 4 0 15 55.610291337 12.13 30.60 5 0 0 .0 .00 .00 .00 .00 .00	007	1	2	7.4	C -,04	.06	07	11,	C= 12,00	34,50	
4 0 15 55.6 *.10 *.29 *.13 *.37 12.13 30.60 292 5 0 0 .0 .00 .00 .00 .00 .00	731 3	<u> </u>	4					. 32			
5 0 0 .00 .00 .00 .00 .00 .00 .00 .00	j A	V) 1 E								
	5	0	12								292
	TUTAL		27	- 14	- taa	• 44	•••	144	100	100	

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LERTAP 2.0	,		, w	SUNN	RY ITE	STATIST	ICS	u (a.e. N.) v .	· · · · · · · · · · · · · · · · · · ·	PAGE 101
TEST NO 2 ACH	. MONIT	R. 65-PO	Ρ				SUBTE	ST_1 GENER	AL OBJECTIV	
	•						_		THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT NAMED IN COLU	1 MY
ITEN NUMBER 9		.		COEFF	CIENTS	OF CORRE	LATION		EANS	
OPTION	WT	N	P	PB-ST	PB-TT	8-81	B=TT	ST	TT	
0	0	0	. ,0	,00	.00	.00	.00	,00	•00	
c ż	i	0 27	100.0	C .00	.00	.00	,00 .00	00 C 12.44	.00	Company Market . 145
3	0	0	.0	.00	,00	,00	,00	12.44	32.81	Sentence Writing (A) Subt-simple separating 11-15
4	0	0	.0	. ,00	.00	.00	•00	.00	.00	over sample scharactiff va.T.
TOTAL		27	0	,00	00	.00	00	.00	.00	
		٠.								i
ITEN NUMBER 10				COEFFI	CIENTS	OF CORRE	LATION	<u> </u>	Eans	
OPTION	Wī		•					,	MULD	•
	- 41	N	P	PB-ST	PB-TT	B-ST	B-TT	57	TT	
0	0	0	,0	.00	,00	.00	.00	•00	,00	
1	0	15	55.6	<u>•,24</u>	-,20	-,3 0.	•,25	11,73	31.33	
c 3	i	10	3,7	C ,50	,00 ,44	34 .63	.01 57	10,00°C 14.60	33,00	Sentence Writing (A)
	0.	1	3,7	•,50	- 62.	-1.16	-1,45	C 14,60	37.70 6.00	Subt-comparison 0-99
5 JATCT	0	0 27	•0	,00	.00	•00	•00	,00	.00	
		<u> </u>								•
TTEN NUMBER 11				COEFFI	CIENTS	OF CORRE	LATION	e design	FANS	
OPTION	WT	N N	P			الويه المواكية	198 T.	September 1		And the second
	7.6	.,,	r	10-21	PB=TT	B-ST	B-TT	ST	TT	
0	0	0	.0	,00	,00	•00	.00	.00	.00	•
1 2	0	. 8	29.6 7.4	4,33	-,19	-,44	, 25	10,75	30,37	Contrary Baladay (2)
с з	1	16	59.3	C ,52	,02 ,40	.65	, 04 , 51	12.00 C 13.87	33,50	Sentence Writing (B) Subt-part part whole-addend
4	0	1	3.7	•,50	-,62	-1,16	-1.45	4,00	35,62 6,00	11-15
JATOT	U	0 27	,0	• 00	,00	.00	•00	.00	.00	•
ITEM NUMBER 12		2000 - 10		COEPFI	CIENTS	OF CORRE	LATION	N. C. W.	ZANS	
OPTION	WT	N	P	PB-ST		B-8T	B-TT	ST	TT	<u> </u>
									, *=	•

7.4 92.6 .00 ∵ु•.31 .00 .00 •.46 .42 C .00 -.24 .24 .00 .00 .00 10,50 12,60 .00 25,50 33,40 -,16 25 ,16 . 20 Sentence Writing (B) . ,0 .00 .00 .00 .00 .00 Add-simple joining 0-99 .0 ,00 ,00 ,00 0 TOTAL 27

ERIC 3

TEST NO 2 ACH. N	ONITR.							PAGE 102				
					SUBTES	T 1	GENERA	L OBJECTIVES	·	_		
ITEM NUMBER 13		·,		COEFFI	CIENTS (F CORRE	LATION		Mé	EANS		194
OPTION	at.	N	P	PB-ST	PB-TT	8 - ST	B=TT		ST	îT		
0 1 2	0	0 1 1	3.7 3.7	.00 03 14	.00 04	.00 06 34	.00 10	, 	.00 12.00 10.00	.00 31.00 33.00	Problem Solving (B)	
C 3 4 5	1 0 0	23 2 0	85.2 7.4 .0	C .49 55 .00	.47 61 .00	.74 -1.02 .00	.71 -1.15	C	13,13 6,00 ,00	34.48 14.50 .00	Subt-part part whole-adden 11-15	d —
TOTAL		21									!	
ITEN NUMBER 14	·			COEFFI	CIENTS	F CORRE	LATION		ME	ANS		
OPTION	wt	N	P	P9-ST	PB-TT	B-ST	B-77		ST	TT		
0 C 1	0	16	3,7 59,3		•,20 ,53	-,34 ,68	•,48 ,67	C	10,00 13,94	24,00 36,50		440 - Terran
3	0	0	14.8 .0 22.2	•,15 ,00 •,44	•,03 ,00 •,51	-,23 ,00 -,62	.04 .00	3	11,25 ,00 9,67	32,25 ,00 24,83	Problem Solving (3) Subt-join-addend 0-99	
TOTAL	V	27	•0	.00	.00	,00	•00		,00	•00		
ITEM NUMBER 15				COEFFI	CIENTS (F CORRE	LATION	No.	ME	CANS		
OPTION	WŢ	N	Ъ	PB-ST	oβ•TT	8-ST	8-77		ST	TT		
0	0	7	25,9	*10	,00	•00 •13	.00	_	,00 13,00	34,43		<u></u>
C 2	0	13 2 5	48.1 7.4 18.5	,09 ,49	,27 ,06	.31 .17	.33 .11	Ç.	13,31 13,50 9,00	35,15 34,50 23,00	Algorithms Addition Algorithm	-
5 TOTAL	Ō	0 27	.0	,00	,00	.00	.00		,00	,00		
ITEN NUMBER 16				COEFFI	CIENTS (of Corre	LATION		NI NI	eans		
OPTION	VT	N .	P	PB-ST	P8-TT	B-ST	8-TT		ST	Tī		<u></u>
0 1 2	0	0 4 5	.0 14.8 18.5	,00 -,21 -,29	.00 14 17	.00 33	.00 21 25	(March	10.75 10.40	.00 30.00 29.80	Algorithms	
295	0	6	43.4 22.2	C ,64	,53 •,36	,81 •,43	• 50 • 50	C	14.83	37.83 27.17	Subtraction Algorithm	000
TOTAL	<u> </u>	27	•0	•00	,00	.00	•00		,00	.00		2 <u>96</u>
ERIC		•	1			******		*	Harry Alley			

TEST NO 2 ACH. MONITE, 65-POP

SUBTEST 1 GENERAL OBJECTIVES

TEN NUMBER 17				COEFFI	CIENTS	of Corne	LATION	<u></u>	IEANS	
OPTION	#T	. **	P	PB-ST	PB-TT	8≠ST	B-TT	ST	TT	
0	0	0	.0	.00	.00	,00	.00	,00	,00	
C 1	1	23	85,2	C ,34	,24	.51	.36		33,65	•
2_	0	. 2	7.4	.05	. 11	.09	. 20	13.00	36,00	- Counties 0s 0 10
. 3	. 0	1	3,7	-,20	,03	•,47	.06	9,00	34,00	Counting On 9-18
4	0	1	3,7	 50	•,62	-1.15	-1.45	4.00	6.00	
5	0	0			.00		.00		00	, !
TOTAL		27				i				- !
TEN NUMBER 18				COEFFI	CIENTS	OF CORRE	LATION		IEANS	
OPTION	u:	N	· p	PB-ST	PB-TT	S-8T	B-TT	57	II	
0.	0	0	.0	.00	.00	•00	.00	.00	•00	i ·
1	Ó	3	11.1	•,22	- 09	•,37	15	10,33	30,67	
C 2	1	20	74.1	C ,33	19	45	125	C-3/13,10	33,75	A
3	0	3	11,1	. 29	- 19	-,49	•,31	9,67	28,33	Counting Back 9-18
. 4	0	1	3.7	.09		21	.06	14.00	34.00	
5 Total	0	0 27	,0	,00	,00	.00	•00	.00	.00	<u></u> •
TEN NUMBER 19				(A) (A)		OF CORRE	*******************	A de la company		
	·	1			ς.Υ	or conne	War sou	4.4	EANS	
OPTION	WT	N	P	PB-ST	PB-TT	B-8T	B-II	51	TT	
0	0	0		,00	,00	.00	.00	.00	.00	• · · · · · · · · · · · · · · · · · · ·
1	0	5	18,5	• . 23	. 14	.,w'•,34	· • . 20	10,80	30.40	-
C 2	1	16	59,3	C .72	,58		73	C 14,44	36,87	Counting On 18-31
3	. 0	3	. 11.1	. 26	·,24			10,00	27,00	to an and an and a
4	-0-	3	11,1	-,50	-,49	•,96	-,82	7,00	21,00	
5	0	0	•0	.00	•00	.00	•00	.00	,00	
TOTAL		27						• •		•

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195

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ERIC Full Text Provided by ERIC

LERTAP 2,0				BUNKI	ry item	STATIST	ICS				PAGE 105
TEST NO 2 ACH.	MONITR	68-PO	<u> </u>				SUBTES	1 2	SENTEN	CE WRITING	PREE RESPONSE
STEN NUMBER 1				COEFF	CIENTS	OF CURRE	LATION		ME	ANS	ITEM DESCRIPTIONS
OPTION	WT	N	P	PB-57	P8-TT	8-ST	B-77		87	77	
0 C 1 2 Totau	0 1 0	0 27 0	100.0	00 00 00	.00 .00	.00 .00	.00	C	.00 3,30 .00	.00 32.81 .00	Sentence Writing Add-part part whole 11-15
10146		41									,
ITEN NUMBER 2				CUEFFI	CIENTS	OF CORRE	LATION		ME	ANS	<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>
OPTION	hT.	<u> </u>	P	PB-8T	PB-TT	B-8T	B=TT		87	<u> </u>	
C 1	0 1	26	96.3 3.7	c ,00 c ,33	.00 07		• 00 • 14	c	,00 3,35 2,00	,00 32,69 36,00	Sentence Writing Subt-simple separating 0-99
TOTAL	•	27	•••	-140	•••	-410	111		2,00	30,00	
ITEM NUMBER 3	· •			COEFF	CIENTS	OF CORRE	LATION		ME	ANS	1
OPTION	WT	N	p	P8-57	PB=TT	B-81	6-11		87	TT	
0	. 0	0	•0	,00	,00	.00	.00		,00	.00	_ Sentence Writing
C 1 2 Total	0	20 7 27	74.1 25.9	c ,67	,46 •,46	.91 -,91	.62 •.62	.C	3,60 2,43	35,10 26,29	Subt-part part whole-addend 0-99
ITEN NUMBER 4				COEFF	CIENT8	OF CORRE	LATION		ME	ANS	
OPTION	WT .	N	P	PB=8T	PB-TT	8-87	B=TT		61	TT	
C 1 2	1 0	1 16 10	3,7 59,3 37,0	C .82	.17 .23 -,30	18 1.04 -1.03	.39 .29 =.38	C	3.00 3.81 2,50	40.00 34.44 29.50	Sentence Writing Subt-join-addend 11-15
TOTAL		27	1,		· 5/9/4/4		74.5 A 34				-

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											•	•
GERTAP 2.0					SUHMA	ry Itel	statist	ICS		· · · · · · · · ·		PAGE 107
TEST NO 2 ACH.	MONIT	R. 65-POF)					SUBTES	1 1	FACTS	SPEED==ADDIT	TON
•						- · ·						
ITEM NUMBER 1			ı.		COEFFI	CIENT8	OF CURRE	LATION		ME	ANS	ITEM DESCRIPTIONS
OPTION	٧T	N	P		PB-8T	PB-TT	B=ST	B-TT		ST	TT	
			-7	·			s. 5	<u> </u>	.i, *** ,	1	e j	_
C 1	1	1 26	3.7 96.3	C	•,60	•,62 ,62		-1,45 1,19	C	,00 9,54	6,00 33,85	3+1
TOTAL	0	27	0		.00	00		.00	Company.	.00	.00	.
TOTAL		41	, .	•					(3. ₁ .)	•		
ITEM NUMBER 2			-		COREST	CTENTE	OF CORRE	LATION		u f	ANS	
				4			,			ns	·	
OPTION	WT	<u> </u>	<u> </u>		PB-ST	PB-TT	B=8T	B-TT	, 30ds	ST	TT.	
0	0	1	3.7				-1.41			.00		Francisco Como Ca
	1	<u>26</u>	96,3	<u> </u>	,60 ,00	.00	1,15 .00	1.19	C.	9,54	.00	2 + 5
TOTAL	•	27	•••		•	,,,,	u .	,,,,		,,,,	•••	
ITEN NUNBER 3			- -	-	COREFI	CTENTS	OF CORR	LATTON		en en en en en en en en en en en en en e	ANS	Section of the sectio
•					eset ^{er}			1,1		3 4		
OPTION	WT	N	₽		PB-8T	PB-TT	B-8T	B-TT		81	TT	. 1
0	0	1	3,7	·	-,60	•,62		-1,45		.00	6,00	
C 1	0	26 0	96,3		00		1,15	2.100		y.54	33,85	1+6
TOTAL		27	t	1,50	Anglesen Control of the	10 (10 (10 (10 (10 (10 (10 (10 (10 (10 (
ITEM NUMBER 4						ATRURA	of dobbi	W LETAN		WE		•
	*	Ça Ç		T VIII	COEFF	CTEULO	OF CORR	A CAL	VIII.	MI S	ans General Control	
OPTION	WT	N	P		PB-ST	PB-TT	8-87	B-77		.57	TT	
0	0	2	7.4		-,68	+,58		-1,08	41.63	2,00	15,50	
C 1 2	0	25 0	92.6	. C	.60 .00	.58 .00		1,00	C .	9,76	34.20 ,00	7 + 2
TOTAL		27		•				(4) 25.86 \$	1.6		***	
	•				to establish							in the state of th
ITEN NUMBER 5					COEFFI	CIENTS	OF CURRI	ELATION	,	WE	ANS	
OPTION	TW	N.	P.	<u> </u>	PB-87	PB-TT	B=ST	B=TT	·	57	TT	
0	0	3	11.1		65	•.56	1.09					
C 1	1 0	22	81.5	C	,64	,55 •,14		.79		10,09	35,05	2+6
TOTAL	₩	27	.7,4		•,16		-130	•,27	·	7,50	28,50	197
<u>, </u>			•	/! 'N	1.11.00	er de da ser tradis	in the Spinish it of Silveri	Jako Niero ak	1.514 A 10 10 10 10 10 10 10 10 10 10 10 10 10	Co Shart Late	يد الأمادي السائد	_

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LERTAP 2	,0					AKMUS	RY ITEM	STATIST	IÇ8	·	<u> </u>	·	PAGE 108	_
TEST NO	2 ACH	MONITR,	65-POP	<u>'</u>				-	SUBTES	T 3	FACTS	SPEEDADD	DITION	
ITEM NUNI	SER 6					COEFFI	CIENTS	OF CORRE	LATION		ME	ANS	198	
	OPTION	MI	N	P			PB-TT	B - 6T	5-11		87	TT		
	C 1	0	1 24	3,7	C	•,60 ,69	*,62	-1,41 1,10	.96	C	,00 9,92	6,00 34,62	3 + 5	
	TOTAL	0	27	7,4	·	-,40	-,28	-,74	52		5,00	24,50	·····	
ITEN NUR	JER 7			·····		CUEFFI	CIENTS	OF CORRE	LATION		ME	ANS		_
	OPTION	WT	N	Р		PB-ST	PB-TT	8-ST	B-TT		ST_	ŢŢ		
·	0 C 1	0 1	5 20	18,5	·C	-,73 ,83	•. 64 .76	1,12	94 1.02	C	4,60 10,65	21.40 36.60	4 + 8	_
	TOTAL	0	27	7,4		-,30	*,31	*,55	58	·	6,00	23,50	·	-
ITEM NUM	BER 8					COEFFI	CIENTS	OF CORRE	LATION			ANS		
	OPTION	NT	N	P		P8=51	PB-TT	B-ST	B=TT	•	ST	IT		
	<u> </u>	0	7 '	25,9 74,1		•,72	•,64		86		5,57	23,71		-
 	2 Total	.	0 27	,0		,00	,00		.86	25.33	10,45	36,00 .00	3 + 7	
ITEM NUMI	SER 9					COEFFI	CIEN18	OF CORRE	LATION		ME	ANS		
	OPTION	#I	N	P		PB-ST	PB+TT	B-ST	8-TT		81	TT		
	C 1 2	1 0	6 16 5	22,2 59,3 18.5	C .	-,78 ,76 -,13	-,60 ,62 -,15	-1.09 .96 18	84 .79 21	¢	4,83 11,06 8,40	23,33 37,19 30,20	5 + 9	-
	TOTAL		27) () () () () () () () () () (Control of the Contro	
ITEM NUN	SER 10					COEFFI	CIENTS	OF CORRE	CATION		ME	ANS	the first of the second	
· .	OPTION	WT	N	<u>P</u>		PB-ST	PB-TT	B-87	B-77		81	TT	· · · · · · · · · · · · · · · · · · ·	_
	C 1	0	12 10	44.4 37.0	Ç.	•,76 .65		•.95 .83	•.74 .71		6,67	27,25 38,90	6 + 8	
333	TOTAL	V	27	18,5		,10	,07	,24	,10		10,20	34,00	304	
ERIC				# ;										

ERTAP 2.0	1		_		AMMUB	RY ITCH	STATIST	IC8			· · · · · · · · · · · · · · · · · · ·	PAGE 109
est no 2 ach.	MONITR.	68-POP			<u> </u>			BUATES	<u> </u>	FACTS	SPEED==ADDITIO	N
TEM NUMBER 11					COEFFI	CIENTS C	F CORRE	LATION	·	NE	ANS	
OPTION	WT	N	P		PB=81	PB-TT	H=8T	8-TT		ST	11	i
0 C 1 2	0 1	9 -	33.3 51.9 14.8	c	-,68 ,63	-,45 ,44 -,02	88 .79	58 .55		6,33 11,00 9,25	27,44 36,36 32,50	8 + 7
TOTAL		27										
TEM NUMBER 12			·		COEFFI	CIENTS (F CURRE	LATION		ME	ANS	
OPTION	WT	N	P		PB-ST	PB-TT	B-8T	B=77		<u>87</u>	TT	
0 C 1	0 1	5 19	18.5 70.4	C	169	-,49		•,71 ,79		5,20 10,53	24,20 36,11	4+9
2 Total	0	3 27	11,1		•,22	-,27	•.36	-,45		7,33	26,33	
	· · · · · · · · · · · · · · · · · · ·								17.00			

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LERTAP 2.0				MMUS	ary itey	e statist	ICS				PAGE 111	
TEST NO 2 ACH.	MONITR,	<u>, 68-PQP</u>					SUBTES	<u> </u>	<u> Pacts</u>	SPEEDSUBT		
ITEN NUMBER 1	· · · · · · · · · · · · · · · · · · ·			COEFF;	<u> ICIENTS</u>	OF CORRE	LATION			EANS	ITEM DESCRIPTIONS	200
OPTION	WT	N	P	PB-ST	P8-TT	B=ST	B-TT		81	TT		
0 C 1	1	25	3.7 92.6	• • •	.30	1.02	. 85	C 8	,00 B,40	6.00 34.00	i . 7 - 1	
TOTAL		27	3,7_	-,31	•,07	•.73	-,15		3.00	30,00	, — ,	
ITEM NUMBER 2				COEFF	ICIENTS	OF CORRE	LATION	<u></u>	ME	EANS	:	
OPTION	WT	<u> </u>	р		PB-TT	B-5T	B=TT		8T	TT		
0 C 1	0	2 24	7,4		,55		•1,15 .88		2,00 3,50	14,50	8 - 4	
TOTAL	-0	1 27	3,7	•,31	07	•,73	•.15		,00	30.00	8 = 4	
TEM NUMBER 3				COEFFI	CIENTS	OF CORRE				ians		•
NOTTO	WT	<u> </u>	Р	PB-ST	PB-TT	B-ST	8-17	. 1986aş	ST	TI		
0 C 1 2 Total	0 1 .	3 24 0 27	11.1		,54	-1.07 1.03 ,00	.00	C 6	2,33	20,00 34,42 .00	9 - 5	
ZEM NUMBER 4				COEFFI	CIENTS	OF CORRE		1 Charles and	•	ANS	- 	
OPTION	WT	N	P	PB-ST	P8-17		B-TT		87	TT		
0 C 1 2	0	8 19 0	29,6 70,4 ,0	C .62	-,70 ,70 ,00	-,81 ,81	••92 •92 •00		.00 .11 .00	23.75 36.63 .00	7 - 4	
TOTAL		27				The gran	4 p	Arthurica		,		
TEN NUMBER S		•		COEFFI	CIENTS	OF CORRE	LATION	ar man,		ANS		
OPTION	WT	N	<u>P</u>	PB-ST		8-87	0=TT	· · · · · · · · · · · · · · · · · · ·	8T	TT	,	1- 12-7-1-1-1-1-1
C 1 2	-0 1 -0	. 20 0	25.9 74.1 (*,51	•.80 •79	69 .68	C. 8	.86	25.57 35.35	8 - 6	Ω *
7 TOTAL	·	27	, 10	,00	,00	• • • • • • • • • • • • • • • • • • • •	•00		•00	.00		3

LERTAP 2.0	·		·		SUKA	NY ITEM	STATIST	108				PAGE 112
TEST NO 2 ACH,	MONLTR	, 68-POP				1		SUBTE	ST 4	FACTS	SPEED==SUBTRA	CTION
ITEM NUMBER 6					Cueffi	CIENTS	OF CORRE	LATION			CANS	
OPTION	WŢ	N	P		PB-ST	P8-T7	9-ST	8-77		ST	TT	
0 C 1 2 YOTAL	0	5 22 0 27	18,5 91,5		61 .61	-,42 ,42 ,00	•,88 .87 .00	-,61 ,60 ,00	C	4,00 8,77 ,00	25,40 34,50 ,00	- 4 - 3 -
ITEM NUMBER 7		-			COEFF	CIENTS	OF CORRE	LATION			ANS	1 March 1991 Charles
OPTION	118	N	P		PB-ST	PB=TT	8-ST	B-TT	,	ST	TT	
. c i	0 1	4 20	14.8 74.1		-,67 ,62	-,48 .40	-1.03 .83	-,74 ,54	C	3,00 9,00	23.00 34.80	11 - 2
TOTAL		27			- 144	-104	7941	-401		7,00	32,67	
ITEM NUMBER 8					Coeffi	CIENTS	OF CORRE	LATION		HE	EANS	
OPTION	ΝĪ	N	P		PB-ST	PB-TT	8-8T	BOTT		51	TT	
0	0	16	59,3		•,72	-,69	-,91	•.87		6,06	28,00	<u>i</u>
2 TOTAL	Ö	27	33,3 7,4		,64 ,20		37 11 (X : Great	,74 ,48		10,67	39,67 40,50	13 - 8
ITEN NUMBER 9	·	·		,	COEFFI	CIENTS	OF CORRE	LATION		N	CANS	<u>;</u>
OPTION	WT	N	P		P8-ST	PB-TT	8-57	B-TT	n seguina n seguina n seguina	8 T	TT	And the second s
C 1 2	1 0	13	40.7 48.1 11.1	, c	•,69 ,64 ,05	•,50 ,53 •,06	•,87 .81 .09	-,63 ,66 -,10	C	5,36 9,92 8,33	27,73 37,46 31,33	12 - 7
TOTAL	•	21		<u></u>	1,1		Spart was in					- - North COMMITTE ON STATE OF THE TOWN OF THE SECOND
ITEN NUMBER 10	<u> </u>				CUEFFI	CIENTS	OF CURRE	LATION		ME	ANS	
OPTION	WT	N	P		PB-ST	PB-TT	B-8T	B-TT		8T	TT	
C 1	0. 1	11 7	40.7 25.9 33.3	C	-,51 ,47	-,49 ,55	,65 ,63	-,62 ,75		6,00 10,29	27.82 40.71 32.78	15 - 9
TOTAL		27								•	•	201

ERIC 9

ERTAP 2.0					SUNMA	RY ITEM	STATIST	ICS					PAGE 113	
SI NO 2 ACH.	HONITR	68-PD	<u> </u>					SUBTES	T_4	FACTS	speed==subt	RACTION		
EM NUMBER 11	····				COEFFI	CIENTS (OF CORRE	LATION		ME	ANS			202
OPTION	WI	Н	P			PB-TT	B-51	B-TT		ST	TT			
0 C 1 2	0 1 0	4 19 4	14.8 70.4 14.8		-,43 ,59 -,33	•,34 ,39 •,16	•.66 .78	-,52 ,51 -,25	C	4,75 9,05 5,50	26.00 34.95 29.50		10 - 2	
TOTAL		27									878 VV			
EM NUMBER 12					COEFFI	CIENTS (F CORRE	LATION		ME	ANS			
OPTION	HT	<u> </u>	P		PB-ST	P8-TT	B-8T	8-77		<u> </u>	TT			
0 C 1	1	13	48.1	<u>C</u>	•,65 ,70	•,62 ,50	81 .88	78 .73	Ç	5.85 10.45	27.30 38.73		16 - 7	
TOTAL		27	11.1		•,06	,08	-,11	,13		7,33	34,67	i	10 - 1	
								Vice Vice				E consideration	tte e e e e e e e e e e e e e e e e e e	

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ST NO 3 ACH.	MONITR,	6T-P	OP				SUSTE	BT 1 GENE	RAL OBJECTI	YES	
en number 1			·····	COEFF	CIENTS	OF CORRE	LATION	·	MEANS	ITEM DESCRIPTIONS	
OPTION	WT	N	P	PB-87	PB-77	B-8T	B-TT	81	TT ,		
0	0	0	.0	,00	.00	.00	,00	,00			
ż	Ŏ	Ĭ	3,0	,00 ,17	.00 .02	.00 .43	.00 .04	.00 16,00		Humerousness	
c 3	1	32	97.0	G -017	02	•,34	*.03	C 13,56	35,47	Writes 0-99	
•	0	0	,0	.00	.00	00	• 00				
TOTAL		33		.00	•00	•00	.00	•00	,00		_
EN NUMBER 3				CORFF	CIENTS	OF CORRE	<u>DATION</u>	CANAL CONTRACT	NEANS .		
OPTION	WT	N	<u> </u>	12 PB-8T	PB-11	B-81	8-77	81	77		
0 C 1	0	0 27	.0	,00	.00	.00	.00	.00	.00	i ·	
- 2	- 	-17	81.8		.16	.51 989.•.458	.23 	C 14.00	35,93		
3	0 -	2	6.1	•,23		.45		第二 11,50	33,50	Represents 0-99	
	0	2	6,1	•,12	,02	•,24	04	12,50	36,00		
TOTAL	Ų	33	0	.00	.00	•00	,00	•00	•00		
EN HUNBER 3	,			COEFF	ICIENTS.	OF CORRE	LATION		neans .	Since the second	_
OPTION	WY	N-	P	P8-81	P8-TT	B-8T	8-77	81	TT		_
0	0	0	.0	.00	,00	•00	.00	.00	• •	<u> </u>	
C 1	0	10	90.9	.00	.00	.00		.00	35,67		
<u> </u>	Ŏ	3	9.1	21		. 31	27	20 12.00	33.67	Open Sentences Subtraction 0-9	
	V	0	•0	.00	.00	• 00'	.00	.00	.00		
TOTAL	V ,	33	.0	.00.	.00	•00	.00	.00	.00	· ·	
EN NUABER 4				COEFF	CIENTS	or Cupri	LATION		HEANS		
OPTION	WT	N	P	P8-81	P8-T7	B-\$T	8-11	\$1	TT		
- · · · · · · · · · · · · · · · · · · ·	0	0	•0	,00	•00	•00	.00		,00		_
c ż.	Ĭ	33	.0 100.0	C .00	.00	.00	.00			Open Sentences	
1	0	Ō	0	.00	.00	.00	.00	. ,00	.00	Addition 10-18	
4	. V	0	•0	,00	,00	.00	.00	.00			
	•		.0	,00	.00	.00	.00	.00	.00		

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LERTAP 2.0				SUMMI	RY ITEM	STATIST	ICS		,	PAGE 117	
TEST NO 3 ACH.	<u>HONIT</u>	H. 61-40	0.2			بيهنج كالكرنكة	SUBTES	ST 1 GENER	AL OBJECTI		
											204
ITEP NUMBER 5				COEFFI	CLENTS	OF CORRE	<u>NOTTAL</u>	<u> </u>	EANS	· · · · · · · · · · · · · · · · · · ·	<u>∡</u>
OPTION	WI	N	P	PB=ST	PB+TT	B=ST	B•TT	51	TT		
0	0	0	.0	.00	.00	.00	.00	.00	.00		
ž	Ŏ	Ö	0	.00	00	.00	.00	00	.00	Problem Solving (A)	
C 3	1	33	100.0		.00	,00	.00	C 13,64	35,48	Add-part part whole 11-15	
1 5	V O	V D	.0	.00	,00 ,00	.00	.00	.00	,00 00		ļ
TOTAL		33							AVV	1	•
ITEM NUMBER 6				COEFF	CIENTS	OF CORRE	LATION	<u> </u>	EANS		
			,								ļ
OPTION	dŢ.	<u> </u>	P	PB-ST	P8-77	B-5T	B-TT	<u> </u>	77		<u></u>
	0	0	.0	,00	.00	.00	.00	.00	.00	•	
1	0 -	12	36,4	•,23	. ,11	-,29	.14.	12,92	36.33		
C 2	1	11	33,3 (3,0	C 69	. 36	. 90 40		C 16.00	30,55	Problem Solving (A)	
4	Ŏ	ġ	27.3	•,19 •,42	.02 •.51	-, 48 -, 56	.04 68	11,00	36.00 30.56	Subt-simple separating 0-99	l
5 TOTAL	0	33	,0	,00	,00	.00	,00	,00	,00	<u>.</u>	-
				· · · · · · · · · · · · · · · · · · ·	ક <u>,</u> ં ુંઘે 'મુધ્	L N T	a sangaran g		AMP COLOR		
ITEM NUMBER 7			, ,		يه د پيرون و در وور	OF CORRE	LATION	All A	eans Eans		
OPTION	WT	N	P	PB-ST	PB-11	B-8T	B-TT	ST	TT	,	
0	0	0	.0_	,00	•00	,00	.00	00	.00		
CI	1	33	100,0	C .00	,00 	g.5g. 00	,00		.00 35.48		
. 4	0	V 0	.0	,00	,00	.00	.00	.00	•00	Order, Place Value	· .
4	- 0	0	- ,0	.00	.00	• 00	.00		,00 ,00	Ordering 0-99	-
5 Total	0	. 0	,0	.00	.00	00	00				
ITEM NUMBER 8				COEFF	(CIENTS)	OF CORRE	LATION		EANS		
OPTION	WT	N	P	PB-ST	PB-TT	B-8T	B-TT	ST	īī		
0	0		3.0	•.05	45. *,19 .2	· · 12	···.48	3 13,00	29,00	· · · · · · · · · · · · · · · · · · ·	
1	0	7	21,2	-,04	.19	06			37.71	•	
315 :			24,2 15,2	-, 03.		• 04	16		34,25	Order, Place Value	31
4	Ö	12	36,4	C .41	.22 -,16	•63 ••29	20	C 16,00 12,92	38,60 34,25	Place Value 0-99	ŊΙ
5	0	0		,00	.00	.00	.00	.00	.00		
TOTAL		33									
				20234		33.73%	Time and				·
ERIC " Full Text Provided by ERIC		•	ŗ		1.17.18.11			<u> </u>		4	
Fast List of Children Le	عرزية المراوي		11.	المن المنافقة		المربو والمراجعات	-			The state of the s	2 3 . 25

		•								•
LERTAP 2.0				SUNMA	RY ITEM	STATIST	ICS			PAGE 118
TEST NO 3 ACH	, MONITR,	6 T- P0P					SUBTES	ST 1 GENER	AL OBJECT	IVES
				,						
ITEM NUMBER 9				COEFFI	CIENTS	OF CORRE	LATION		EANS	
OPTION	WT	N	p	PB-ST	PB-TT	B-ST	B-TT	16	TT	
0	0	0	16,2	.00 -,12	,00 -,06	,00 -,18	•00	13,00	.00 34.67	
C 2	1	24	72.7	C .39	,45	.52	.60	C 14,21	37,12	Sentence Writing (A)
4	0	2	6,1 3,0	*,23	-,36 -,52	-, 45 -1,03	-1.30	11.50 8.00	27.00 19.00	Subt-comparison 11-15
5 Total	0	0	.0	.00	.00	.00	• 00	.00	,00	
10148		33								,
ITEN NUMBER 10				COEFFI	CIENTS	OF CORRE	LATION	. 1	EANS	
OPTION	WT	N	P			B-ST		81	TT	
^			<u>_</u>							
	0	0	•0	.00	.00	.00	.00 .00	.00	.00	
C 3	1	32	97.0	C .12	.00	.00			.00 35,75	Sentence Writing (A) Add-part part whole 0-99
4	0	1	3,0	•,12	· • , 25		State Control	12,00	27.00	Wild Control of the c
TOTAL	V	33	-0	•00	,00	•00	•00	.00	.00	-
				. 198 Fac 199		10	VERSIN		CNOSTE O C. BUE	Ruseau de la composition della
ITEM NUMBER 11				Coeffi	CIENTS	of Corre	LATION		eans.	
UPTION	dT	N	P	PB-ST	PB-TT	B=51	BOTT	81	11	**************************************
0	0	0	.0	.00	.00	.00	.00	.00	.00	•
1 2	0	0	.0	.00	,00	.00	•00	.00	.00	Sentence Writing (B)
C 3	1	33	100.0	C. ,00.	.00	00	.00	C 13,64	,00 35,48	Add-simple joining 11-15
5	0	0	.0	.00	.00	•00	.00	•00	.00	•
TOTAL		33	• <u> </u>	*	*	COMPage A	at see	NAMES OF SOLAR SOCIO		
ITEM NUMBER 12			ره (مار) (د ا	COPPET		of Corre	Laptou			
	u m	<u> </u>								
OPTION	WI	N	P	PB+ST	PB-TT	B-8T	B=TT	ST	. 11	•

LERTAP 2,0				BUNN	ary iten	STATIS?	ICS	, 		PAGE 119
TEST NO 3 ACI	. MONITR.	6T-POP	· · · · · · · · · · · · · · · · · · ·				SUSTE	ST 1 GENER	AL OBJECTIV	ES
VANS MANAGE										
ITEM NUMBER 13				COEFF	CIENTS	OF CORRE	LATION	M	EANS	
OPIION	HT	N	P	P8-5T	PB-IT	B-87	B=TT	ST	TT	
Ō	0	0	•0	,00	.00	.00	.00	.00	.00	
1 2	0	1 2	3.0 6.1	-,05	-,19	12	48	13,00	29,00	Bu 11 - B 1
C 3	1	29	87.9	C ,44	.37	•.55 •70	,00 ,59		35,50 36,31	Problem Solving (B) Add-simple joining 11-15
4	0	1	3.0	-,41	-,52	-1,03			18,00	umm_armhra lorurud ff-f)
TOTAL	0	- 33	.0	,00	.00	00	.00		00	
-4448		44								
ITEM NUMBER 14				COEFF	CIENTS	OF CORRE	LATION		EANS	
OPTION	WT	N	P	•					• 4	
#1 14VII	7.4			PB-ST	PB+TT	B-5T	B-77	<u>51</u>	TT	
0	0	0	.0	.00	.00	.00	•00	.00	.00	•
<u>C1</u>	1 0	9 10	27.3	C ,46	, 29	.62	.39	C 15,44	38.33	Problem Solving (B)
ŝ	Ö	5	30.3 15.2	•,09 •,32	,09 -,32	12 49	-,12 -,49	13,30 11,80	36,30	Subt-part part whole-addend
	0	<u> </u>	27.3	•,11			17	13,22	31.00 34.22	0-99
5 Total	0		,0	.00	.00	.00	.00	,00	,00	````
TTEN NUMBER 15				COEFF		OF CODE	e y Yang			
OPTION	ΨT	A1			<u> </u>	OF CORRE		Philippins .	eans	
ALITUN		N	P		PB-TT	B-ST	B-TT	87	TT	
0	0	0	0 0	,00	.00	.00	.00	,00	•00	<u> </u>
C 2	i	23	9,1 69,7	C .45	#,06	•.15	n. • . II	13,00	34,33	1000 1000
3	Ŏ	5	15,2		,35 •,23	,59 -,55	-,46 -,36	C. 14.35 11.60	36.87 32,20	Algorithms
4	0	3	6,1	-,23	-,26	•,45	•,51	11,50	29.50	Addition Algorithm
TOTAL	0.	0 33	•0	.00	,00	•00	.00	,00	00	
							• •			
ITEN NUMBER 16		· · ·		COEFFI	CIENTS	OF CORRE	LATION	N N	EANS	
OPTION	WT	Ņ	P	P9=5T	PB-TT	8=87	B-TT	ST	TT	÷
0 C 1	0	0	.0	.00	.00		,00	,00	,00	
2	0	20 6	60,6 18,2	C .55	,45	,69	.57	C 14,70	37.65	
10 3	0	0	0	,00	.00	****•.47 ; •00	•,25 •00	·00	33,33	Algorithms
19	0	7	21.2	-,35	-,38	•.50	•,54	12.00	31,14	Subtraction Algorithm
TOTAL	0	33		,00	.00	.00	.00	.00	.00	32
**************************************		••							*	
								Control of the Contro		
				14.			1		Contract of the	Marie Land Control

TEST NO 3 ACH, MONITE, 6T-POP

SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 17				COEFFI	CIENTS	OF CORRE	LATION	ME	ANS		
OPTION	WT	N	P	PB=ST	PB-TT	8-87	8-77	87	TT		
0	0	0	3,0	,00 05	,00	.00	•00 •11	13,00	.00 37.00		
2	Ŏ	i	9.1	.09	•.10	,16	17	14,33	33,67	Marridge Back D. 10	
C 3		22	66.7	,32	,37	- 41	* ,48	C 14,18	37,05	Counting Back 9-18	
4	0	7	21.2	-,41	•,38	*,58	-,54	11.71	31.14		
TOTAL	<u> </u>	33	.0	,00	,00	.00	<u>, </u>	,00	,00		
ITEN NUMBER 18			_	COEFF	ICIENTS	OF CORRE	LATION	NI NI	SNA:	<u> </u>	
OPTION	- 41	Ŋ	P	PB-81	PB-TT	8-57	B-TT	87	TT TT	AND THE RESERVE	
	0	0	.0	.00	.00	,00	.00	.00	.00		
C1	l	21	63.6	51	.35	,66 	.45	C 14.57	37.05 35.60		
3	. 0	3	9,1	30	15	-,53		11,33	32,67	Counting On 18-31	
Ĭ	Ò	1	12.1	-,37	39	•,60	-,63	11,25	29,25	· ·	
TOTAL	0	33	•0	,00	,00	•00	,00	.00	,00	·	
ITEM NUMBER 19				COEFF	ICIENT8	of Corre	LATION	MI	anb		
OPTION	ar	N	þ	P8-51		B-8T	B-77	81	TT	Table 18 . A market property of the same o	
0	0	0	,0	,00	,00	.00	.00	,00	,00		
C 2	0	26	9.1 78.8	C .48	26		•,45	ा १५% मा २२,०० व े ८ के लेखा १, 23	30.67		
3	Ô	3	9,1	48, C	01		-,01	12,00	36,73 35,33	Counting On 9-18	
4	0	1	3.0	•,41	-,52		-1.30	8,00	18,00		
5	. 0	0	.0	,00	,00	.00	.00	.00	.00		
TOTAL		33				•					

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Lertap 2.0					BUNMA	RY ITEM	"Statist	ics			· · · · · · · · · · · · · · · · · · ·	PAGE 122	
TEST NO 3 ACH,	MONITR,	6T-POP			 ,			SUBTES	T 2	BENTEN	CE WRITING	PREE RESPONSE	
ITEN NUMBER 1					COEFFI	CIENTS	OF CORRE	LATION		ME	ANS	ITEM DESCRIPTIONS	208
OPTION	WI	N	P		P8-5T		8-87	B=TT		5T	TT	1124 0000011 11910	
0 C 1 2	0 1 0	0 32 1	97.0 3.0	Ç	,00 ,41 =,41	.00 .16	.00 .80 -1,03	.00 .32 41	¢	.00 3,28 1,00	.00 35,66 30,00	Sentence Writing Subt-simple separating 11-15	
TOTAL		33		. •					,				
ITEN NUMBER 2					COEFFI	CIENTS	OF CURRE	LATION		ME	ANS		
OPTION	WT	N	P		PB-ST	P8-TT	B-5T	B=TT		ST	TT		
. C 1	0	1 19	3.0 57.6	C	-,23 ,84	,10 ,50	•.57 1.06		C	2,00 3,89	39,00 (38,05	Sentence Writing	
TOTAL	. 0	13 33	39,4		•,77	-,55	-,98	-,69		2,31	31,46	Subt-comparison 0-99	
ITEM NUMBER 3					COEFFI	CIENTS	OF CORRE	LATION		ME	a,ns	:	-
UPTION	ЙT	N .	P		PB-ST	PB-TT	B=ST	B-TT		51	TT		
0	0	1	3,0		•,23	.10	•,57	,26		2,00	39.00	Canbana IIndbd-a	
C 1 2 Total	0	3 3 33	9.1		,48 -,41	122	174	.34		3.36	35.97	Sentence Writing Add-simple joining 0-99	•
ITEM NUMBER 4			,		COEFFI		OF CORRE				ANS		
OPTION	WI.	N	p		P8-5T	P8-11	B+ST	· B=TT		ST	'IT	and the second s	
C 1 2	1 0	0 26 7	78,8 21,2	C	,00 ,74 •,74	.00 .25	.00 1.04 -1.05	.00 .36	С	.00 3,58 1,86	,00 36,27 32,57	Sentence Writing Subt-part part whole-addend 11-15	•
TOTAL		33	-		7 7 7 7 7			· .				· · · · · · · · · · · · · · · · · · ·	-



ERIC Fruit Text Provided by ERIC

LERTAP 2.0		1		NHUS	YKA JARM	8741131	ICS			PAGE 124
TEST NO 3 ACH,	HONIT	R, 6T-PO	IP				Subtes	T 3 FACTS	SPEEDAUDI	TION
ITEM NUMBER 1				COEFF	'ICIENTS	OF CORRE	LATION	1	MEANS	ITEM DESCRIPTIONS
OPTION	WT	N	P	PB-81	PB-TT	8-ST	B=TT	81	TT	
C 1 2	0 1 0	3 30 0	9,1 90,9	c .72	.56	-1.27 1.20	••98 •92 •00	5,67 C 11,00	25,00 36,53 ,00	2 + 4
TOTAL		33		,		•				
ITEH NONBER 2				COEFF	ICIENTS	OF CORRE	LATION		TEANS	
OPTION	WT	N	P	PB-ST	PB-TT	8-51	B-TT	8T	_ TT	
0 C 1	0	? 29	6,1 87,9	C ,62		. 96	.83		24.50 36.66	6+3
TOTAL	V	33	6,1	*,24	•,26°	•,48	• 51	8,50	29,50	 , , , , ,
ITEM NUMBER 3				COEFF	ICIENTS	of Corre	LATION		IEANS	And the second of the second o
OPTION	- qy	N	P	PB-51	P8-TT	8 - 51	B-TT	ST	TT	
0	. 6	1	3.0	•,71		-1.78	-1.30	2,00	18,00	
C 1 2 TOTAL	0	32 0 33	97.0 .0	C ,71		.00	1.01		36.03 .00	5 + 2
ITEM NUMBER 4				Coeff	'ICIENTS	OF CORRE	LATION	,	1EANS	
OPTION	WT	K	P	PB-S1	P8-TT	. B=8T	B-11,	81	11	
0 C 1 2	0 1 0	32 0	3.0 97.0	•,71	-,52 ,52	-1.78 1.38	-1.30 1.01 .00	2,00 C 10,78	18,00 36,03 .00	2 + 3
TOTAL		33								
ITEM NUMBER 5				COEFF	ICIENTS.	UP CURRE	LATION		IEANS	
OPTION .	MI.	N	P	PB-57	PB-TT	8-57	B-TT	ST	TT	
0 C 1	0	33	.0 100.0		,00	.00	.00		.00 35,48	5+0
TOTAL	0	33	0	.00	,00	.00	•00	.00	.00	

LERTAP 2.0				SUMM	ARY ITEM	STATIST	IÇ8		"\		PAGE 125	
TEST NO 3 ACH	<u> </u>	6T-POP					SUBTE	7] [ACTS	BPEED=-ADDITIO)N	
ITEN NUMBER 6		-		COEFF	<u>icienta</u>	OF CORRE	LATION		ME	ANS		210
OPTION	17	N	P	PB-81	PB-77	B-8T	8-77		81	77	1	
C 1 2 TOTAL	0 1 0	32 0 33	3.0 97.0	C .71	,52	*1.78 1.38	-1.30 1.01 .00		7.00).78 .00	18,00 36,03 .00	1+3	
iten Number 7		·		COEFF	ICIENT8	OF CORRE	LATION		ME	ANS	!	
OPTION	WŢ	K	ρ	P8=81	P8•11	B-8T	B-11		87	77		
0 C 1 2 Total	0	1 32 0	3.0 97.0	-,71 C ,71	,52	-1.78 1.38 .00	-1,30 1,01 .00		2.00).78 .00	18,00 36,03 .00	9 + 2	****
ITEN NUMBER (COEFF	icients.	DF CORRE	LATION		HE	ANS	· · · · · · · · · · · · · · · · · · ·	
OPTION	WT	N	P	PB-81	PB-TT	8-51	B-11		6T	TT	<u>* </u>	
C I 2 Total	1 0	32 0 33	3,0 97.0 .0	*,25 C ,25	.25	•,73 ,87 ,00	-,63 ,49 ,00	C 10	7,00 0,62 ,00	27,00 35,75 ,00	6 + 6	
ITEM NUMBER 9				Coeri	icients	OF CORRI	:LATIO <u>N</u>	•	ME	ANS	'	
OPTION	WT	Ķ	P	PB=81	P8-TT	8-87	B-11		5 T	TT	:	
0 C 1 2	0 1 0	6 25 2	18,2 75,8 6,1	C ,66	,67	•,98 ,07 •,12	•,91 •,91 •,38	C 1	7.50 1.28 0.00	27,67 37,72 31,00	4+7	
TOTAL		33	,			Jy sy e				en en en en en en en en en en en en en e		:
ITEN NUMBER 10		-	•	COEF	ICIENTS	OF CORR		(#19 <u>1917</u>)		ANS	THE CONTRACTOR OF A CONTRACTOR	
OPTION	WT	<u> </u>	p .	PB-81	P8-TT	8-87	8-77		81	77		
327 c 1	0 1 0	7 22 4 33	21.2. 66.7 12.1			-1.02 .93 22	*.03 .03 *.30	C 1:	7,57 1,59 9,75	28.71 30,18 32,50	7+6	328-
-ERIC											tie .	

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TEN NUMBER 11	O 1 0	N 11 21	P 33,3	'	FICIENTS (OF CORRE	SUBTES			SPEEDADDI	
0 C 1		11		PB-S					ME	ANS	
C i	0 1 0		33.3		r pe-tr	B-6T	B-TT		ST	TT	:
10110		33	63,6	C .7:	61	-,97 ,92 ,10	81 .79 04	C	8,27 11,67 11,00	30.27 39.24 35.00	9 + 7
		J J									
YEN NUMBER 12			_		CLENTS			1	ME	ANS	
	WT	N	P		PB+TT	B-ST	B-TT		8T	TT	
C 1	0	27	18.2	C .5	48	-,62 .81	-,69	C	11,07	29,50 36,81	6 + 4
TOTAL	٧	33	70	•0	00,00	.00	•00		,00	•00	
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								•			
		-									
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				19 19 30 19 30	en en en en en en en en en en en en en e	no continues		estle e	Alexander Services		
	ï		* • .								
								<u> </u>			Mr.
· · · · · · · · · · · · · · · · · · ·		<u></u> _					The entropy (1997) Right Top (1997)	arangga (1) Sumaga (1)		Santania (Santania)	.
		1 10 m									man and a second
				•							
							Y		7 . 1	Alegan († 1875), de se con Participato de la constante de la constante de la constante de la constante de la constante de la constante de La constante de la constante d	
											

LERTAP 2	.0					SUMMA	RY ITEM	STATIST	īcs	<u>.</u>				- PAC	E 128
TEST NO	3 ACH,	MONITR,	6T-P0	P						T 4	FACTS	SPEEDS	UBTRAC!		
ITEM NUM	BER 1					Coeffi	CIENTS	OF CURRE			•	eans -		ITEM DESCRIPTI	212 Ons
	OPTION	WT	N	P		PB-ST	PB-TT	B=8T	B-11		87	TT			,
	C 1 2 TOTAL	0 1 0	1 31 1	3,0 93,9 3,0	Ç	09 .18 17	=,01 =,00 ,02	-,22 ,33 -,42	04 00 .04	C	7,00 8,23 6,00	35,00 35,48 36,00		3 - 2	
			70												
ITEN NUN	BER 2	,				COEFFI	CIENTS	OF CORRE	LATION	·	M,	EANS			
	OPTION	WT	<u>N</u>	P		PB-ST	PB-TT	8=5T	B-TT	-	ST	TT			····
	C 1	0 1	0 31 2	93.9 6.1	С	,00 ,35	,00 ,32	,00 ,63		. C		,00 35,97 20,00		6 - 4	
	TOTAL		33	***		100	100		-104		2144	10100	•		
ITEM NUM	BER 3					COEFFI	CIENTS (OF CORRE	LATION		MI	EANS		game (Care a real and and a second of the se	•
	OPTION	WT	N	P		P8-5T	P8-TT	B=ST	Batt		\$T	TT			•
·	0	0	0	,0	<u> </u>	,00	.00	,00	,00		,00	.00			
- Chicaria de Constanto, mangasta	TOTAL	0	33 0 33	100,0		,00	.00	,00 ,00	h 1			35,48		9 - 1	
ITEH NUM	BER 4				•	COEFFI	CIENTS (OF CORRE	LATION		. Ni	eans	!		
	OPTION	WT	N	P		Pb-ST	PB•T1	B-8T	BeTT		. 8T	T		The second secon	
	C 1 2	1	27 1	15,2 81,8 3,0	C	55 55	•,48 ,44 ,02	•,84 •,79 •,22	•,73 •63 •04	C _.	5.20 8.70 7.00	28,80 36,70 36,00		7 - 3	
,	TOTAL		33						20 <u>.</u> 31. 32.			1		(2)	
ITEN NUM					<u> </u>	COEFFI	CIENTS (OF CURRE	GÁTIUN	1.10.		EANS		· · · · · · · · · · · · · · · · · · ·	
	OPTION	VT	N	<u>P</u>		PB-ST	P8-77	B-ST	B-TT	March & C	57	TT		Hidding &	
	0 C 1	0 1	0 33	100,0	C:	.00	,00	, 00 t	.00	e siste	.00 0.12	.00 35,48		6 - 1	000
331	TOTAL	Ü	33	. ,0	<u> </u>	,00	,00	.00	.00	<u>1₹4, w ?</u>	,00	,00		0 - 1	332
ERIC Treated by ERIC															

TEST NO 3 ACH.	MONITE	. 6T-PO	Þ		ı		SUBTEST	4 FACTS	SPEED==8U	BTRACTION
				-					UI DED	3111143331
ITEM NUMBER 6				COEFFI	CLENTS (F CORRE	LATION	<u>M</u>	EANB	
OPTION	WT	N	P	PB-ST	PB=TT	8-5T	B-TT	81	. TT	er en grande en en en en en en en en en en en en en
0 C 1	0	6 25	18,2 75,8	-,41 C ,53	•,38 ,51	60 .73	56 .70 C	6,17 9,80	30,67 37,20	7 - 5
Ž Total	<u> </u>	33	6.1	-,30	- 30	- 59	•,59	5.50	28.50	
		•			1 1			,		
ITEM NUMBER 7	•		,	Coeffi	CIENTS (OF CORRE	LATION	M	EANS	
OPTION	WT	N	P	PB-8T	PB-TT	8-8T	8-77	87	TT	1 To 1 To 1 To 1 To 1 To 1 To 1 To 1 To
0	0	5	15.2	-,40	-,60	•.61		6,00	27.00	
C 1	0	26 2 33	78,8 6,1	C .46	,06	-,36	,69 C	8,65 6,50	37,00 37,00	10 - 4
TOTAL							F12 .54	National and the state of the		
ITEM NUMBER 8				COEFFI	CIENTS (LATION	T. T. T.	eans .	
OPTION	NT	N	p	PB-81	PB-TT	B-8T	B-TT	8 T	TT	ス と注い。 Table Ta
0	0	14	42.4	•,73	-,71	-,92	•,90	6,21	30,57	
C 1 2	0	10	30.3 27.3	C .58	,44	28	.59	10.10	38,50 39,78	13 - 9
TOTAL	' '	33	<u> </u>	M. A. Stranger		A Comment	(*************************************			*\$\$50%;3;
ITEM NUMBER 9				COEFFI	CIENTS (OF CORRE	LATION	M	<u>eans</u>	
OPTION	WT -	H	P	PB-81	PB-TT	8•87	Bett	81	77	A Company of the Comp
0 C 1	0	16 12	48,5	C .57	-,40 ,43	*•61 •74	•.50 .55 C	7,00 9,83	33,06 38,83	14 - 8
2 Total	0	<u>5</u> 33	15,2	-,10	•,02	15	03	7,60	35,20	1
ITEM NUMBER 10				COEFF	CIENTS	OF CORRE	LATION	,	EANS	
OPTION	NT	N	P	PB-8T	PB-TT	8-8T	B-77	8 T	77	N. S. Markett annual hands a name of the state of the sta
0	0	18	54,5	-,68	-,62	•.05	-,70	6,72	32,11	
C 1 2	0	12	36,4	-,11	-,65	-,19	-,01	7,33	40,58 35,33	11 - 7
TOTAL		33								
333 Prince 3333						الكون الأنواج والأول الكون الأنواج والأول	. غۇرۇپ ئارىيى	in (10) arabili (4) (ر در در البطاط	334

LERTAP 2.0				BUAMA	RY ITEM	STATIST	IC8	'			PAGE 130	
TEST NO 3 ACH,	MONITR	6T-POP				برزائد مزجوات ساط	SUBTES	1 4	FACTS	SPEED==8UE	TRACTION	
ITEM NUMBER 11				COEFFI	CIENTS (of Corre	LATION		ME	ANS		214
OPTION	YT	N	P	PB-ST	PB-TT	B-8T	B=7T	,	ST	TT		
C 1 2	0 1 0	12 16 5	36.4 40.5 15.2	•.60 C ,65 •,10	-,54 ,56 -,06	•,77 ,81 •,15	-,69 ,71 -,10	C	6,33 9,62 7,60	31.25 38.94 34.60	12 - 4	-
TOTAL		33					1 %				The second secon	
THEN NUMBER 13				COEFF	CIENTS (OF CORRE	GAYION		ME	ANS		the Productive Selection of the Control
OPTION	WT	N	P	P8-8T	PR-TT	8-81	B-TT		57	77		_
0 C 1	0	19 12	57.6 36,4		, 38	80	-,62 ,49	C	6.89 9.75	33.00 30.50	17 - 9	
TOTAL	0	33	6,1	- ,21	,24	,42	•47		10,00	41,00		-
	·			····			J.F.		ga galakar			

ERIC

Appendix C

PERFORMANCE BY OBJECTIVE FOR THE TWO

SCHOOLS AND SIX CLASSES

NOTE: For those objectives for which there are three items, the number of subjects represented in the proportion correct at a particular test time is ascertained simply by summing the N's for the three forms; however, when there are more or less than three items, the N is increased or decreased proportionately.

No data were prepared by school and class for the Algorithms (Timed Test) objectives.



Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR: SCHOOL 1

Description of Objectives		Objecti	ve			Composi	Composite Objective				
		Adminis	tratio	n Time		Adminis	Administration Time				
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	\$ - 5	S-6			
lumerousness											
writes 0-99	3	69.2	71.7	71.7	6						
represents 0-99	3		80.0		·	70.0	75.8	78.3			
pen Sentences						•					
add 0-20	3	83.1	91.7	86.7							
aubt 0-20	3 3		95.0								
	3	87.7	91.7	86.7							
+ 0-10 + 11-20	3 3		95.0		6	84.6	93.3	88.3			
ordering, Place Value											
ordering 0-99	3	67.7	78.3	76.7							
notation 0-99	· 3	13.8			6	40.8	47.5	43.3			
Problem-Solving (Set A)											
subt-simple separating	2	59.5	65.0	54.8	•						
add-part part whole	. 2	57.8		77.5							
subt-comparison	2		60.0								
11-15	3	75.4	85.0	88.3							
0-99	3		45.0		6	59.2	65.0	65.8			
roblem-Solving (Set B)	,	•									
subt-join-addend	2	60.5	67.5	71.1							
add-simple joining	2 2		77.5		•						
subt-part part whole-addend	2		55.0								
11-15	3	80.0	90.0	85.0			·				
0-99	3		43.3		6.	59.2	66.7	65.8			



Table (Continued)

Description of Objectives		Objecti	.Ve			Composi	te Obj	,ectiv
	** 4	Adminis	tratic	on Time		Adminis	tratio	n Tim
	Number of Items	S-4	8-5	S-6	Number of Items	S-4	S - 5	S-6 &
Sentence-Writing (Set A)							<u> </u>	
subt-simple separating	2	88.4	82.5	86.8				
add-part part whole	2		90.0					
Subt-comparison	2		40.0		·			
11-15	3	75.4	16.7	R5.0				
0-99	3		65.0		6	63.1	70.8	76.7
Sentence-Writing (Set B)		11 0	4A A	97 A		•	•	
subt-join-addend	2		20.0					
add-simple joining	. 2		95.0					
subt-part part whole-addend	2	J0,1	45.0	50.0				
11-15	3	53.8	58.3	63.3				
0-99	3		48.3		6	51.5	53.3	56.7
Sentence-Writing (Free Response)								
add-simple joining	2		82.5					
aubt-simple separating	2		97.5					
subt-part part whole-addend	2		80.0					
add-part part whole	2		82.5					
subt-comparison	2		40.0					
subt-join-addend	2	23.3	32.5	39.5				
Set A (as above)	6		73.3					
Set B (as above)	6		65.0					
11-15	6		76.7					
0-99	6	56.9	61.7	68.3	12	59.2	69.2	72.5
Algorithms							0	•
addition algorithm	3		63.3					
subtraction algorithm	3	36.9	41.7	35.0	6	43.9	52.5	
340								j

ERIC ish the problem types correspond to Set B, these free response problems have the same wording etc. as the interview i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

Table (Continued)

escription of Objectives	<u> </u>	Object:	ive			Composite Objectiv			
	No. and and	Admini	w 1	Administration Time					
	Number of Items	S-4	S - 5	S-6	Number of Items	S-4	S-5	S-6	
ounting								-	
on 9-31	5	68.2	71.0	76.0					
back 9-31	4	55.3	66.3	61.3	9	62.6	68.9	69.4	
Recall of Basic Facts (Speeded Test)									
add 0-20					36	. 60.0	70 /	70.0	
subt 0-20					36		73.6 61.0		
 		Admini	stratio	on Time					
		\$-4	S - 5	S-6					
orm R	Ŋ =	20	20	20					
orm S	N =	23	20	18				•	
orm T	И -	22	20	22					

Table .

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR; SCHOOL 3

								0
Description of Objectives		Object:	ive			Composit	e Obje	ective
		Admini	stratio	on Time		Administ	ratio	n Time
	Number of Items	S-4	S - 5	S-6	Number of Items	S-4	S-5	S-6
umerousness								
writes 0-99	3	61.8	65.6	89.7	6 .			
represents 0-99	3		87.5			69.1	76.6	87.9
pen Sentences						•		
add 0-20	3	88.2	84.4	93.1				
subt 0-20	3	82.4	90.6	89.7				
<u>+</u> 0-10	3	91.2	87.5	86.2				
± 11-20	3		87.5		6	85.3	87.5	91.4
Ordering, Place Value								
ordering 0-99	3 3	82.4	90.6	82.8				
notation 0-99	3	11.8	3.1	17.2	6	47.1	46.9	50.0
roblem-Solving (Set A)								
subt-simple separating	2	59.1	77.3	65.0			1	
add-part part whole	2	62.5	100.0	70.0				
subt-comparison	2	54.6	75.0	72.2				
11-15	3	85.3	87.5	96.6				
0-99	3	32.4	81.3	41.4	6	58.8	84.4	69.0
roblem-Solving (Set B)								
subt-join-addend	2	68.2	75.0	72.2				
add-simple joining	2 2		77.3					
subt-part part whole-addend	· 2	50.0	63.6	55.0				
11-15 344	3 3	94.1	93.8	86.2	,			
0-99 344	3		50.0		6	61.8	71.9	3 ^{69.0}

ERIC Fruit Text Provided by ERIC

Description of Objectives		Object:	lve	•		Composi	te Obj	ective
		Adminia	tratio	n Time		Adminis	tratio	n Time
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S - 5	5-6
Sentence-Writing (Set A)								
subt-simple separating	2	95.5	90.0	83.3				
add-part part whole	2		100.0					
subt-comparison	2	29.2	45.5	75.0	,			
11 -15	3	64.7	78.1	96.6				
0-99	3	67.7	78.1	75.9	6	66.2	78.1	86.2
Sentence-Writing (Set B)					,	•		
subt-join-addend	2		31.8					
add-simple joining	2		95.5		,			
subt-part part whole-addend	2	59.1	65.0	61.1				
11-15	3		62.5			-A A	44.	/A 1
0-99	3	47.1	65.6	55.2	6	58.8	64.1	62.1
Sentence-Writing (Free Response)		A.		A				
add-simple joining	2		100.0					
subt-simple separating	2		100.0					
subt-part part whole-addend	2		72.7					
add-part part whole	2	90.9		94.4				
subt-comparison subt-join-addend	2		59.1 65.0					•
	•	. 7/ 5	00 0	06.0				
Set A (as above)	6		82.8			•		
Set B (as above)	6		79.7	04.0				
11-15	6		85.9				. .	A+ -
· 0 - 99	6	72.1	76.6	82.8	12	76.5	81.3	84.5
Algorithms	•			.				
addition algorithm	3		59.4				F4 /	(0.1
subtraction algorithm	3	17.7	43.8	65.5	6	35.3	21.0	62.1
346							34	7

ERICugh the problem types correspond to Set B, these free response problems have the same wording etc. as the interview i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

Table (Continued)

Description of Objectives		Object:	ive			Composite Objectiv				
	Number	Admini	Number	Administration Time						
,	of Items	S- 4	S - 5	S-6	of Items	S-4	S-5	S-6		
Counting										
on 9-31	5		87.0							
back 9-31	4	63.6	59.5	81.6	9	74.5	75.0	79.3		
Recall of Basic Facts (Speeded Test)								•		
_ add 0-20					36	67.7	75.8	92.2		
subt 0-20					36		62.2			
		Admini	stratio	on Time			,			
		S-4	S - 5	S-6				i		
Form R	Ŋ =	10	10	9 .						
form S	И =	12	10	9						
form T	. N =	12	12	11						

Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR: CLASS 1

Description of Objectives	•	0bjecti	ve	•		Composite Objective				
		Adminis	tratio	n Time		Administration Time				
	Number of Items	S-4	S - 5	S-6	Number of Items	S-4	S-5	S-6		
Numerousness										
writes 0-99	3	72.7	85.0	72.7	6					
represents 0-99	3	77.3	95.0	95.5		75.0	90.0	84.1		
Open Sentences						•				
add 0-20	3	100.0								
subt 0-20	3	95.5	100.0	100.0						
± 0-10	3	100.0	90.0	90.9						
± 11-20	4 3	95.5	100.0	100.0	6	97.7	95.0	95.5		
Ordering, Place Value				•						
ordering 0-99	3 · 3		90.0		,					
notation 0-99	3	18.2	15.0	9.1	6	54.6	52.5	47.7		
Problem-Solving (Set A)										
subt-simple separating	2		78.6							
add-part part whole	2	50.0		86.7						
subt-comparison	2	68.8	71.4	85.7				4		
11-15	3		90.0							
0–99	3	31.8	60.0	59.1	6	59.1	75.0	79.6		
Problem-Solving (Set B)		•			•					
subt-join-addend	2 2	56.3	78.6	85.7						
add-simple joining	_		85.7					A)		
subt-part part whole-addend	2		58.3					223		
11-15	3	72.7	95.0	86.4	,					
0-99	3	50.0	55.0	59.1	6	61.4	75.0	72.7		



35,1

Description of Objectives		Objective		Composite Objective			
		Administration Time		Administration Time			
	Number of Items	S-4 S-5 S-6	Number of Items	S-4 S-5 S-6 *			
Bentence-Writing (Set A)							
subt-simple separating	2	93.8 100.0 100.0					
add-part part whole	2	85.7 100.0 100.0					
subt-comparison	2	35.7 58.3 66.7					
11-15	2	00 0 05 0 00 0		·			
0-99	3	90.9 85.0 90.9 54.6 90.0 86.4	6	72.7 87.5 88.6			
Sentence-Writing (Set B)			·	•			
subt-join-addend	2	14.3 28.6 33.3					
add-simple joining	. 2	92.9 100.0 100.0					
subt-part part whole-addend	2	81.3 64.3 71.4					
11-15	3	63.6 65.0 68.2					
0-99	3	63.6 60.0 68.2	6	63.6 62.5 68.2			
Sentence-Writing (Free Response)							
add-simple joining	2	100.0 100.0 93.3					
subt-simple separating	2	100.0 91.7 100.0					
subt-part part whole-addend	2	42.9 83.3 86.7					
add-part part whole	2	100.0 85.7 92.9					
subt-comparison	2	21.4 50.0 60.0					
subt-join-addend	2	31.3 50.0 35.7					
Set A (as above),	6	75.0 75.0 84.1					
Set B (as above)	6	56.8 77.5 72.7					
11-15	6	68.2 82.5 81.8					
0 –99	6	63.6 70.0 75.0	12	65.9 76.3 78.4			
Algorithms				•			
addition algorithm	3	63.6 80.0 63.6					
subtraction algorithm	3	54.6 50.0 50.0	6	59.1 65.9 55.8			
352			-	J JJ			
₿ , •							

ugh the problem types correspond to Set B, these free response problems have the same wording etc. as the interview; i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

escription of Objectives		Objecti	lve			Composite Objective			
	Administration Time				99	Administration Time			
	Number of Items	S-4	S-5	S- 6	Number of Items	S-4	§-5	S-6	
ounting	_								
on 9-31 back 9-31	5 4		87.5 78.6		9	80.3	83.3	80.3	
Recall of Basic Facts (Speeded Test)									
add 0-20 subt 0-20					36 36		88.8 80.0		
		Admini	stratio	on Time				,	
ı		S-4	S-5	S-6					
orm R	Ŋ =	8	8	7					
orn S	N =	8	6	7					

ERIC Full Text Provided by ERIC

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR: CLASS 2

				-			0
	Object:	lve			Composi	te Obj	ective
	Adminis	tratio	on Time		Adminis	tratio	n Time
Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
						-	
3	62.5	41.7	64.3	6			
3	68.8	75.0	78.6		65.6	58.3	71.4
	,				•		
3							
3	75.0	91.7	78.6				
3	75.0	91.7	85.7				
3	75.0	91.7	78.6	6	75.0	91.7	82.1
3	56.3						
3	0.0	33.3	21.4	6	28.1	50.0	46.4
					•		1
	62.5	57.1	50.0				
	53.9	66.7	55.6				
2	45.5	50.0	44.4				
3	56.3	66.7	78.6				
3	50.0	50.0	21.4	6	53.1	58.3	50.0
				` <i>,</i>			
2							
2	38.5	55.6	44.4				
3	81.3	91.7	85.7		357		
3				6	59.4	62.5	64.3
	of Items 3 3 3 3 3 3 3 3 3 2 2 2 2 2 2 3 3 3	Number of Items S-4 3 62.5 3 68.8 3 75.0	Number of Items S-4 S-5 3 62.5 41.7 3 68.8 75.0 91.7 3 75.0 91.7	Number of Items S-4 S-5 S-6 3 62.5 41.7 64.3 3 68.8 75.0 78.6 3 75.0 91.7 85.7 3 75.0 91.7 78.6 3 75.0 91.7 78.6 3 75.0 91.7 78.6 3 56.3 66.7 71.4 3 0.0 33.3 21.4 2 62.5 57.1 50.0 2 53.9 66.7 55.6 2 45.5 50.0 44.4 3 56.3 66.7 78.6 3 50.0 50.0 21.4 2 63.6 50.0 55.6 2 87.5 85.7 90.0 2 38.5 55.6 44.4 3 81.3 91.7 85.7	Number of Items S-4 S-5 S-6 Number of Items 3 62.5 41.7 64.3 6 3 68.8 75.0 78.6 6 3 75.0 91.7 78.6 6 3 75.0 91.7 78.6 6 3 75.0 91.7 78.6 6 3 75.0 91.7 78.6 6 3 56.3 66.7 71.4 6 2 62.5 57.1 50.0 55.6 6 2 45.5 50.0 44.4 6 6 2 63.6 66.7 78.6 6 6 2 63.6 50.0 55.6 6 6 2 67.5 85.7 90.0 6 7 7 7 6 2 67.5 85.7 90.0 7 7 7 7 6 7 7 7 6 7 7 7 7 7 7 7 7 7 <td< td=""><td>Number of Items Administration Time Number of Items Administration Time Number of Items S-4 S-5 S-6 of Items S-4 3 62.5 41.7 64.3 6 65.6 3 75.0 91.7 85.7 6 65.6 3 75.0 91.7 78.6 6 75.0 3 75.0 91.7 78.6 6 75.0 3 56.3 66.7 71.4 6 28.1 2 62.5 57.1 50.0 2 23.9 66.7 55.6 2 45.5 50.0 44.4 4 3 56.3 66.7 78.6 53.1 2 63.6 50.0 55.6 2 87.5 85.7 90.0 2 38.5 55.6 44.4 4 3 81.3 91.7 85.7 35.7 35.7 35.7</td><td>Administration Time Administration Time Number of Items S-4 S-5 S-6 of Items S-4 S-5 3 62.5 41.7 64.3 6 65.6 58.3 3 75.0 91.7 85.7 3 75.0 91.7 78.6 6 75.0 91.7 3 75.0 91.7 78.6 6 75.0 91.7 3 75.0 91.7 78.6 6 75.0 91.7 3 56.3 66.7 71.4 6 28.1 50.0 2 62.5 57.1 50.0 2 25.9 66.7 55.6 2 45.5 50.0 44.4 4 3 56.3 66.7 78.6 6 53.1 58.3 2 63.6 50.0 55.6 2 47.5 85.7 90.0 2 38.5 55.6 44.4 4 3 81.3 91.7 85.7 35.7 35.7</td></td<>	Number of Items Administration Time Number of Items Administration Time Number of Items S-4 S-5 S-6 of Items S-4 3 62.5 41.7 64.3 6 65.6 3 75.0 91.7 85.7 6 65.6 3 75.0 91.7 78.6 6 75.0 3 75.0 91.7 78.6 6 75.0 3 56.3 66.7 71.4 6 28.1 2 62.5 57.1 50.0 2 23.9 66.7 55.6 2 45.5 50.0 44.4 4 3 56.3 66.7 78.6 53.1 2 63.6 50.0 55.6 2 87.5 85.7 90.0 2 38.5 55.6 44.4 4 3 81.3 91.7 85.7 35.7 35.7 35.7	Administration Time Administration Time Number of Items S-4 S-5 S-6 of Items S-4 S-5 3 62.5 41.7 64.3 6 65.6 58.3 3 75.0 91.7 85.7 3 75.0 91.7 78.6 6 75.0 91.7 3 75.0 91.7 78.6 6 75.0 91.7 3 75.0 91.7 78.6 6 75.0 91.7 3 56.3 66.7 71.4 6 28.1 50.0 2 62.5 57.1 50.0 2 25.9 66.7 55.6 2 45.5 50.0 44.4 4 3 56.3 66.7 78.6 6 53.1 58.3 2 63.6 50.0 55.6 2 47.5 85.7 90.0 2 38.5 55.6 44.4 4 3 81.3 91.7 85.7 35.7 35.7



Description of Objectives			Composite Objective					
	Nl	Adminis	tratio	n Time		Adminis	tratio	n Time
	Number of Items	S-4	S - 5	S-6	Number of Items	S-4	S-5	\$-6
Sentence-Writing (Set A)								***************************************
subt-simple separating	2	90.9	75.0	77.8				
add-part part whole	2		85.7	80.0				
subt-comparison	2	15.4	11.1	44.4	,	·		
: 11 -1 5	3	68.8	66.7	78.6				
0– 99	3	50.0	41.7	57.1	6	59.4	54.2	67.9
Sentence-Writing (Set B)						•		
subt-join-addend	2	12.5	28.6	30.0				
add-simple joining	2	76.9	88.9	100.0				
subt-part part whole-addend	2	36.4	25.0	55.6				
11-15	3	50.0	58.3	71.4				
0-99	3	43.8	41.7	50.0	6	46.9	50.0	60.7
Sentence-Writing (Free Response)								
add-simple joining	2	75.0	42.9	80.0				
subt-simple separating	2	92.3	100.0	100.0				
subt-part part whole-addend	2	38.5	77.8	77.8				
add-part part whole	2	81.8	75.0	88.9				
subt-comparison	2	0.0	57.1	30.0				
subt-join-addend	. 2	27.3	37.5	33.3				
Set A (as above),	6	65.6	79.2	71.4				
Set B (as above)	6		54.2					
11-15	6	56.3	70.8	75.C				•
0-99	6	53.1	62.5	60.7	12	54.7	66.7	67.9
Algorithms	•							227
addition algorithm	· 3		41.7			,		
subtraction algorithm	3	31.3	25.0	14.3	6	31.3	33.3	
358 ugh the problem types cor				,			35	

ugh the problem types correspond to Set B, these free response problems have the same wording etc. as the interview; i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

escription of Objectives		Object	lve			Composite Objective				
	Administration Time					Administration Time				
	Number of Items	S-4	S - 5	S-6	Number of Items	S-4	\$-5	S-6 6		
ounting										
on 9-31	5	75.9	61.9	69.6						
back 9-31	4	31.6	40.0	47.4	9	58.3	52.8	59.5		
Recall of Basic Facts (Speeded Test)										
add 0-20					36	. 49.5	65.3	60.1		
subt 0-20					36	31.8	43.1	51.3		
		Admini	stratio	on Time				1		
		S-4	S - 5	S-6						
orm R	Ŋ -	3	3	5						
orm S	Ŋ -		5	4						
orm T	Я =	8 5	4	. 5						

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR: CLASS 3

Description of Objectives		Objecti	.ve				Composi	te Obj	ective	
		Adminis	tratio	n Time			Administration Time			
	Number of Items	\$-4	S - 5	S-6		mber Items	S-4	S-5	S-6	
Numerousness										
writes 0-99	3	61.1	58.8	81.3		6				
represents 0-99	3	77.8	82.4	87.5			69.4	70.6	84.4	
Open Sentences							•			
add 0-20	3		82.4			,				
subt 0-20	3	88.9	88.2	81.3						
+ 0-10	3	94.4	88.2	75.0						
± 11-20	3 3	83.3	82.4	93.8		6	88.9	85.3	84.4	
Ordering, Place Value										
ordering 0-99	3	72.2	94.1	87.5						
notation 0-99	3	11.1		25.0		6	41.7	47.1	56.3	
Problem-Solving (Set A)	,									
subt-simple separating	2	45.5	81.8	72.7						
add-part part whole	2	73.3	100.0	63.6				1		
subt-comparison	2	50.0	72.7	60.0						
11-15	3	83.3	82.4	93.8						
0-99	3	33.3	88.2	37.5		6	58.3	85.3	65.6	
Problem-Solving (Set B)	•									
subt-join-addend	2	70.0	81.8	70.0						
add-simple joining	2		81.8	72.7		ı			Ŋ	
subt-part part whole-addend	2	46.7	75.0	63.6					229	
11-15	3	88.9	94.1	81.3	ı					
0-99	3	27.8				6	58.3	79.4	68.8	

ERIC Full Text Provided by ERIC

Table (Continued)

Description of Objectives		Objective		Composite Objective
	Number	Administration Time	N 1	Administration Time
	of Items	S-4 S-5 S-6	Number of Items	S-4 S-5 S-6 O
Sentence-Writing (Set A)				
subt-simple separating	2	90.0 81.8 70.0		,
add-part part whole	2	81.8 100.0 100.0		
subt-comparison	2	33.3 16.7 63.6		
11-15	3	61.1 58.8 93.8		
0-99	3	66.7 70.6 62.5	6	63.9 64.7 78.1
Sentence-Writing (Set B)				,
subt-join-addend	2	0.0 0.0 0.0		•
add-simple joining	2	93.3 91.7 100.0		
subt-part part whole-addend	2	50.0 63.6 50.0		
11-15	3	72.2 58.8 50.0		
0-99	3	33.3 47.1 50.0	6	52.8 52.9 50.0
Sentence-Writing (Free Response)				,
add-simple joining	2	90.9 100.0 100.0		
subt-simple separating	2	93.3 100.0 90.9		
subt-part part whole-addend	2	80.0 75.0 72.7		
add-part part whole	2	90.0 81.8 90.0		I.
subt-comparison	2	27.3 27.3 63.6		F *
subt-join-addend	2	40.0 63.6 60.0		
Set A (as above),	6	72.2 70.6 81.3		
Set B (as above) 1	6	72.2 79.4 78.1		
11-15	6	80.6 82.4 78.1	•	
0-99	6	63.9 67.7 81.3	12	72.2 75.0 79.7
Algorithms			•	
addition algorithm	3	50.0 58.8 68.8		
subtraction algorithm	3	22.2 52.9 68.8	6	36.1 55.9 68.8
364				365

ugh the problem types correspond to Set B, these free response problems have the same wording etc. as the interview i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

escription of Objectives	,	Objective				Composite Objectiv				
	M1	Adminia	stratio	on Time	Y	Administration Time				
· •	Number of Items	S-4	S-5	S-6	Number of Items	S-4	Ş-5	S-6		
ounting										
'nn 9-31	5	75.8	79.3	66.7						
ack 9-31	4	57.1	59.1	81.0	9	68.5	70.6	72.9		
Recall of Basic Facts (Speeded Test)					,					
add 0-20					36	61.6	73.5	90.1		
aud 0-20					36 36	•	54.9			
		Admini	stratio	on Time		· · · · · · · · · · · · · · · · · · ·				
; v		S-4	S - 5				•			

•			S-4	S - 5	S- (
orm R	·	N =	3	5	5
orm S		N =	7	6	5
orm T		Ŋ =	8	6	6



23I

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR:

CLASS 4

		CLASS 4		232	-			
Description of Objectives		Objective		Composite Object:				
	,	Administration Time		Administration Time				
	Number of Items	S-4 S-5 S-6	Number of Items	S-4 S-5 S-	6			
Numerousness	1	75 A 90 A 71 A	6					
writes 0-99 represents 0-99	3	75.0 88.9 71.4 50.0 66.7 71.4	•	62.5 77.8 71	.4			
Open Sentences				•				
add 0-20	3	87 1.00.0 71.4		•				
subt 0-20	3	87. 88.9 100.0						
<u>+</u> 0-10	3	87.5 100.0 85.7		! ! 44				
± 11-20	3	87.5 88.9 85.7	6	87.5 94.4 85	.7			
Ordering, Place Value		AT F 77 0 E7 1						
ordering 0-99	3 3	37.5 77.8 57.1	6	31.3 38.9 28	.6			
notation 0-99	3	25.0 0.0 0.0	U	3113 3013 10				
Problem-Solving (Set A)		TO 0 (/ 7 /0 0						
subt-simple separating	2	50.0 66.7 40.0		•				
add-part part whole subt-comparison	2	60.0 83.3 100.0 60.0 50.0 60.0		•				
11-15	3	62.5 100.0 71.4						
0-99	3	50.0 33.3 57.1	6	56.3 66.7 64	1.3			
Problem-Solving (Set B)								
subt-join-addend	2	80.0 50.0 60.0						
add-simple joining	2	33.3 66.7 60.0						
subt-part part whole-addend	2	40.0 33.3 50.0						
11-15258	3	87.5 66.7 100.0	£	50.0 50.0 57	7 1			
ERIC	3 .	12.5 33.3 14.3	6		, , 1			
Fall Text Provided by EBC				369				

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Description of Objectives		Objecti	lve	Composite Objective				
		Adminie	trati	on Time		Adminis	tratio	n Time
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S - 5	S-6
Sentence-Writing (Set A)								
subt-simple separating	2	40.0	33.3	40.0				
add-part part whole	2			100.0				
subt-comparison	2			25.0				
11-15	3	75.0	44.4	85.7				
0-99	3			28.6	6	43.8	38.9	57.1
Sentence-Writing (Set B)			1/ 7	80.0		•		
subt-join-addend	2 .2			20.0				
add-simple joining	. 2			50.0				
subt-part part whole-addend	2	20.0	0.0	0.0				
11-15	3			42.9				
0-99	3	37.5	22.2	0.0	6	31.3	33.3	21.4
Sentence-Writing (Free Response)								
add-simple joining	2		66.7					
subt-simple separating	2	100.0						
subt-part part whole-addend	2			50.0				
add-part part whole	2		66.7					
subt-comparison	2	0.0						
subt-join-addend	2	0.0	16.7	20.0	•			
Set A (as above),	6	50.0	61.1	50.0				
Set B (as above)	6	31.3	50.0	50.0				
11-15	6			50.0				
0-99	6	31.3	44.4	50.0	12	40.6	55.6	50.0
Algorithms				ı				233
addition algorithm	3			57.1				
subtraction algorithm	3	12.5	22.2	42.9	6	25.0	44,4	50.0
370						ı	1	171
8 5 74 8							U	11

ugh the problem types correspond to Set B, these free response problems have the same wording etc. as the interview; i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

Table (Continued)

escription of Objectives		Object	lve			Compos	ite Ob	jectivo		
		Admini	stratio	on Time		Administration Time				
	Number of Items	S-4	S - 5	S-6	Number of Items	S-4	S-5	S-6 !		
ounting										
on 9-31 back 9-31	5 4		53.3 66.7		9	29.2	59.3	47.6		
Recall of Ba Facts (Speeded Test,	•									
add 0-20 subt 0-20					36 36	-	57.4 44.4			
		Admini	stratio	on Time				•		
		S-4	S-5	S-6						
form R	Ŋ =	3	3	3						
form S form T	N = N =	2 3	3 3	2 2						



Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR: CLASS 5

Description of Objectives		Object	ive			Composi	te Ob	jective
		Admini	strati	on Time		Adminis	trati	on Time
	Number of Items	S4	S-5	S-6	umber Items	S-4	S - 5	S-6
Numerousness								
writes 0-99	3 ·	62.5	73.3	100.0	6			
represents 0-99	3	75.0	93.3	84.6		68.8	83.3	92.3
Open Sentences						•		
add 0-20	3	87.5	86.7	100.0				
subt 0-20	3	75.0	93.3	100.0	•			
<u>+</u> 0-10	3 .	87.5	86.7	100.0				
± 11-20	3	75.0	93.3	100.0	6	81.3	90.0	100.0
Ordering, Place Value								
ordering 0-99	3	93.8	86.7	76.9				
notation 0-99	3	12.5	6.7	7.7	6	53.1	46.7	42.3
Problem-Solving (Set A)				,				
subt-simple separating	2		72.7					
add-part part whole	2 2		100.0					
subt-comparison	4	58.3	77.8	87.5	•			
11-15	3	87.5	93.3	100.0				
0-99	3	31.3	73.3	46.2	6	59.4	83.3	73.1
Problem-Solving (Set B)								
subt-join-addend	2	66.7	66.7	75.0		•		
add-simple joining	2 :	72.7	72.7	88.9				
subt-part part whole-addend	2	55.6	50.0	44.4				235
11-15	3	100.0	93.3	92.3	ė			35
0-99	3		33.3		6	65.6	63.3	69.2

Description of Objectives		Object	lve		•	Com	posi	te Obj	ective
		Adminia	trati	on Time		Adm	inis	tratio	n Time
	Number of Items	S-4	S - 5	S-6	Number of Items	S	-4	S-5	236 S-6
Sentence-Writing (Set A)								, -	
subt-simple separating	2	100.0	100.0	100.0					
add-part part whole	2	72.7	100.0	100.0					
subt-comparison	2	22.2	80.0	88.9					
11 - 15	3	68.8	100.0	100.0					
0-99	3		86.7		6	6	8.8	93.3	96.2
Sentence-Writing (Set B)	•					•			
subt-join-addend	2		63.6						
add-simple joining	2		•	100.0					
subt-part part whole-addend	2	66.7	66.7	75.0					
11-15	3			92.3					
0-99	3	62.5	86.7	61.5	6	6	5.6	76.7	76.9
Sentence-Writing (Free Response)									
add-simple joining	2		100.0						
subt-simple separating	2			100.0	·				
subt-part part whole-addend	2		70.0						
add-part part whole	2		100.0						
subt-comparison	2		90.9						
, subt-join-addend	2	75.0	66./	75.0					
Set A (as above)	6	81.3	96.7	92.3		•			
Set B (as above)	6	81.3	80.0	88.5					
11-15	6	81.3	90.0	96.2					
0-99	6	81.3	86.7	84.6	12	8	1.3	88.3	90.4
Algorithms									
addition algorithm	3			46.2	·				_
"subtraction algorithm	3	12.5	33.3	61.5	6	377	34,4	46.7	53.9
376	•					011			
•			٠.						

igh the problem types correspond to Set B, these free response problems have the same wording etc. as the interview i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

Table (Continued)

inis	stratio						
	*****	n Time		Administration Tim-			
; - 4	S-5	S-6	Number of Items	S-4	§- 5	S-6	
	ı						
				e.			
9.6	60.0	82.4	9	81.3	80.0	87.2	
	•		36	74.5	78.3	94.9	
			36				
inis	stratic	on Time	<u> </u>			-	
i4	S_5	C-6					
1	9.6	9.6 60.0	2.0 96.0 90.9 9.6 60.0 82.4 sinistration Time 8-4 S-5 S-6	9.6 60.0 82.4 9 36 36 36 dinistration Time	9.6 60.0 82.4 9 81.3 36 74.5 36 64.1	9.6 60.0 82.4 9 81.3 80.0 36 74.5 78.3 36 64.1 70.6	

	5-4	5-5	5-0
N =	7	5	4
N =	5	4	5
И =	4	6	5
		N = 7 N = 5	N = 5 4

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR: CLASS 6

Description of Objectives		Composite Objective							
	Administration Time				4. 4	Administration Time			
	Number of Items	S - 4	S - 5	S-6	Number of Items	S - 4	S-5	S-6	
Numerousness									
writes 0-99	3	68.4	68.4	76 5	6			ļ	
represents 0-99	3	73.7				71.1	71.1	79.4	
Open Sentences						•			
add 0-20	3 3	68.4	89.5	88.2				ļ	
subt 0-20	3		94.7						
	3	84.2	89.5	Q 2				ļ	
± 0-10 ± 11 00	3		94.7		6	76.3	92.1	Ω 5 γ	
± 11-20	•	••••	<i>3</i> 7₹1	0012	•	1013	76.1	د.ره	
Ordering, Place Value	•		_					ļ	
ordering 0-99	3		73.7	• •	•			ļ	
notation 0-99	3	15.8	15.8	5.9	6	39.5	44.7	41.2	
Problem-Solving (Set A)									
subt-simple separating	2	64.3	53.9	50.0				!	
add-part part whole	2	69.2		=				ļ	
subt-comparison	2	63.6							
11-15	3	84.2	84.2	88.2	<u>.</u>				
0~99	3		31.6		6	65.8	57.9	61.8	
Problem-Solving (Set B)									
subt-join-addend	2 2	54.5	75.0	70.0					
add-simple joining	2		69.2						
subt-part part whole-addend	. 2		61.5						
11-15	3	84.2	94.7	76.5				٠	
0-99 380	3		42.1		6	38160.5	68.4	61.8	

Description of Objectives	•	Composite Objective						
		Administra	tion Time	-	Administration Time			
	Number of Items	S-4 S-	5 S-6	Number of Items	S-4	S-5 S-6		
Sentence-Writing (Set A)								
subt-simple separating	2	100.0 91	7 100.0					
add-part part whole	2	78.6 92						
subt-comparison	2	15.4 53						
11 - 15	3	63.2 89	.5 82.4	•				
0-99	3		.4 70.6	6	63.2	79.0 76.5		
Sentence-Writing (Set B)					•	•		
subt-join-addend	2	14.3 7	7 16.7	•				
add-simple joining	2	76.9 100	0 100.0	1				
subt-part part whole-addend	2	63.6 58	.3 40.0					
11-15	3	57.9 57			•			
0-99	3 3	42.1 52.	.6 47.1	6	50.0	55.3 52.9		
Sentence-Writing (Free Response)			• .					
add-simple joining	2	100.0 92						
subt-simple separating	2	92.3 100						
subt-part part whole-addend	2	46.2 84				P		
add-part part whole	2	100.0 91						
subt-comparison	2 2		8 58.3					
subt-join-addend	2	18.2 16	.7 60.0	•		•		
Set A (as above),	6	68.4 73.	.7 85.3	•				
Set B (as above)	6	57.9 65						
11-15	6	63.2 79	.0 85.3	•				
0-99	6	63.2 60	.5 73.5	12	63.2	69.7 79.4		
Algorithms					•	239		
addition algorithm	3	57.9 57.	.9 64.7			v .		
subtraction algorithm	3	31.6 52.	6 29.4	6	44.7	55.3 47.1		
382				,		383		
						_		

ERIC ish the problem types correspond to Set B, these free response problems have the same wording etc. as the interview i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

Table (Continued)

Objective					Composite Objective			
Administration Time			V 1	Administration Time				
of Items	S-4	S - 5	S-6	Number of Items		S-4	S -5	S-6 ⁵
5								
4	20.0	08.0	68.2	9		59.7	68.4	72.6
				36		61.4	70.6	72.1
				36				
	Adminis	stratio	on Time				1	
	S-4	S-5	S-6					
N =	6	6	5					
N =	5	6	5					
	5 4	Administration Number of Items	Administration Number of Items S-4 S-5 5 62.5 68.8 4 56.0 68.0 Administration S-4 S-5 N = 6 6 N = 5 6	Administration Time Number of Items S-4 S-5 S-6 5 62.5 68.8 75.9 4 56.0 68.0 68.2 Administration Time S-4 S-5 S-6 N = 6 6 5 5 5 6 5	Administration Time Number of Items S-4 S-5 S-6 N = 6 6 5 N = 5 6 5	Administration Time Number of Items 5 62.5 68.8 75.9	Administration Time Number of Items S-4 S-5 S-6 5 62.5 68.8 75.9 4 56.0 68.0 68.2 9 59.7 Administration Time S-4 S-5 S-6 N = 6 6 5 N = 5 6 5	Administration Time Number of Items S-4 S-5 S-6 Number of Items S-4 S-5 S-6 Administration Time S-4 S-5 S-6 N = 6 6 5 N = 5 6 5

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