DOCUMENT RESUME

ED 058 256 TM 000 966

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TITLE Survey of Achievement in Arithmetic in Grade 4 of Vancouver Schools, May 25-28, 1971.
INSTITUTION Vancouver Board of School Trustees (British Columbia).
REPORT NO RR-71-11
PUB DATE 21 Jun 71
NOTE 13p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Academic Achievement; *Achievement Tests; *Arithmetic; *Grade 4; *Scores; Test Results; Tests; Timed Tests

ABSTRACT

A survey test in arithmetic consisting of two separately administered parts (see TM 000 967 and TM 000 968) was given to pupils in Grade 4 of the Vancouver School System. Test content included a computation section (Part I) and a concept section (Part II). A summary of test results is presented in three tables. (CK)

(CK)

RESEARCH REPORT

SURVEY OF ACHIEVEMENT IN ARITHMETIC

IN GRADE 4 OF VANCOUVER SCHOOLS,

MAY 25-28, 1971.

June 21, 1971.

E. N. Ellis

Research Report 71-11

Department of Planning and Evaluation
Board of School Trustees,
1595 West 10th Avenue,
Vancouver 9, B. C.

Survey of Achievement in Arithmetic in Grade 4 of Vancouver Schools, May 25-28, 1971.

A survey test in Arithmetic was administered to all pupils (N=5,538) in Grade 4 of Vancouver Schools during the week of May 25-28, 1971.

The test had two parts and these were given in separate sessions.

Part I consisted of 30 items in "Computation"; Part II, "Concepts", had 32 items.

The time limit for each part was 30 minutes.

The test was first designed in 1968. It was given this year unchanged except for one minor clarification and one substitute item in Part II. A copy of the test is attached.

The principal features of the survey appear in Table I. The median scores are slightly below those obtained in the 1968 survey. There were fewer 'perfect' scores and more 'zero' scores.

TABLE I: SUMMARY OF RESULTS--SURVEY TEST IN ARITHMETIC (FORM 68 REVISED), GRADE IV, VANCOUVER SCHOOLS, MAY 25-28, 1971.

(Comparable statistics for May, 1968, appear in brackets)

	Part I "Computation"	Part II "Concepts"	Total Test
No. of Schools	69	69	69
No. of Pupils	5580	5585	5538
Possible Score	30	32	62
Median Score	20.2 (22.2)	18.3 (20.6)	38.7 (42.6)
Median as %age	67.3% (74%)	57.2% (64.4%)	62.4% (68.7%)
Perfect Scores	53 (73)	15 (32)	2 (9)
Zero Scores	5 (0)	2 (1)	0 (0)

Percentile norms are presented in Table II.

TABLE II: SCORES ON THE SURVEY TEST IN ARITHMETIC FUNDAMENTALS (FORM 68 REVISED) - GRADE IV, CORRESPONDING TO SELECTED PERCENTILE LEVELS, GRADE IV, VANCOUVER SCHOOLS, MAY 25-28, 1971.

Percentile	Part I "Computation" (N=5580)	Part II "Concepts" (N=5585)	TOTAL SCORES (N=5538)
	(possible 30)	(possible 32)	(possible 62)
99	30.0	30.6	59.6
95	28.2	28.4	55.6
90	27.0	26.8	53.2
85	26.0	25.4	51.0
80	25.1	24.2	48.8
75	24.3	23.2	47.1
70	23.4	22.2	45.4
65	22.6	21.2	43.7
60	21.8	20.2	42.1
55	21.0	19.3	40.4
50	20.2	18.3	38.7
45	19.3	17.3	37.0
40	18.5	16.3	35.1
35	17.5	15.3	33.2
30	16.5	14.2	31.2
25	15.4	13.5	29.1
20	14.1	12.1	26.8
15	12.6	10.7	24.5
10	10.8	9.1	21.2
05	8.2	6.9	16.9
01	3.8	3.5	9.0

The ranges of scores corresponding to letter grades appear in Table III.

TABLE III: RANGES OF SCORES CORRESPONDING TO LETTER GRADES, SURVEY TEST IN ARITHMETIC (FORM 68 REVISED) - GRADE IV, VANCOUVER SCHOOLS, MAY 25-28, 1971.

Letter Grade	Range of Scores		
	Part I	Part II	TOTAL SCORES
A	29 - 30	29 - 32	56 - 62
B	25 - 28	24 - 28	48 - 55
C+	22 - 24	21 - 23	43 - 47
C	19 - 21	17 - 20	36 - 42
C-	16 - 18	14 - 16	30 - 35
D	9 - 15	7 - 13	17 - 29
E	0 - 8	0 - 6	0 - 16

THE BOARD OF SCHOOL TRUSTEES OF SCHOOL DISTRICT NO. 39 (VANCOUVER)
DEPARTMENT OF RESEARCH AND SPECIAL SERVICES

SURVEY TEST

in

ARITHMETIC FUNDAMENTALS
(Form 68)

GRADE 4

PART I - COMPUTATION

(Time Limit: 30 minutes)

Pupil's Name _____
(First Name) (Last Name)

School _____ Date _____

Division Number _____

Score _____

Do not turn the page until told to do so.

PART I - COMPUTATION

Find the value of, n, (questions 1-5).

1. $n = 7 + 120 + 18$ n = _____

2. $100 - 37 = n$ n = _____

3. $n = 540 \times 100$ n = _____

4. $48 \div 6 = n$ n = _____

5. $197 + 56 = 200 + n$ n = _____

6. In 325 there are _____ twenty-fives.

7. \$.75 = _____ quarters + 2 dimes + 1 nickel.

8. $(3 \times 5) - (3 \times 4) =$ _____

9. 7000 = _____ tens.

10. 3 thousands + 20 tens + 5 ones = _____

11. To the sum of 3 and 4 add the difference of 9 and 7 Answer: _____

Make these statements true.

12. $(4 + 5) \times 2 - 10 =$ ☐

13. $6 + (3 \times 2) -$ ☐ $= 12$

14. $\frac{1}{2}$ of 8 = $\frac{1}{3}$ of ☐

GO ON TO THE NEXT PAGE.

15. Write in standard notation:

$(4 \times 10 \times 10 \times 10) + (2 \times 10 \times 10) + (6 \times 10) + (9 \times 1) =$ _____

16. Which of these signs belongs in the bracket? = − > <

$12 \div 3 (\ ) 2 \times 3$

17. $4 = \frac{1}{5}$ of ☐

18. $\frac{3}{4}$ of $12 =$ ☐

19.
$$\begin{array}{r} 26 \\ 49 \\ +\ 265 \\ \hline \\ \hline \end{array}$$

20.
$$\begin{array}{r} 637 \\ -\ 425 \\ \hline \\ \hline \end{array}$$

21.
$$\begin{array}{r} 242 \\ -\ 123 \\ \hline \\ \hline \end{array}$$

22.
$$\begin{array}{r} 523 \\ -\ 134 \\ \hline \\ \hline \end{array}$$

23.
$$\begin{array}{r} \$6.60 \\ -\ \$2.34 \\ \hline \\ \hline \end{array}$$

24.
$$\begin{array}{r} 404 \\ -\ 336 \\ \hline \\ \hline \end{array}$$

TURN TO THE NEXT PAGE.

25. $\begin{array}{r} 364 \\ \times\ 7 \\ \hline \end{array}$

26. $\begin{array}{r} 789 \\ \times\ 56 \\ \hline \end{array}$

27. $\begin{array}{r} 303 \\ \times\ 34 \\ \hline \end{array}$

28. $7\overline{)434}$

29. $17\overline{)2584}$

30. In the following division question, find the remainder.

$54\overline{)3706}$

Remainder is _____

GO BACK AND CHECK YOUR WORK.

THE BOARD OF SCHOOL TRUSTEES OF SCHOOL DISTRICT NO. 39 (VANCOUVER)
DEPARTMENT OF RESEARCH AND SPECIAL SERVICES

SURVEY TEST

in

ARITHMETIC FUNDAMENTALS
(Form 68 Revised)

GRADE 4

PART II - CONCEPTS

(Time Limit: 30 minutes)

Pupil's Name _____
(First Name) (Last Name)

School _____ Date _____

Division Number _____

Score _____

Do not turn the page until told to do so.

PART II - CONCEPTS

1. Fill in the missing number

   23, 26, 29, ___, 35

2. $7 \times 21 = \square \times 7$

3. $81 = \square + 81$

4. $(8 + 7) + 10 = \square + (8 + 10)$

5. Which is the smallest fraction?

   $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{5}$ Answer: _____

6. Of these numbers, 12, 13, 14, 15, 16, the prime number is _____

7. The common factors of 4 and 6 are one and _____

8. $(3 \times 5) + 5 + 5 =$ _____ $\times 5$

9. $\frac{2}{3} = \frac{\square}{9}$

10. $(7 + 5) \times 9 = (7 \times 9) + (\square \times 9)$

11. The average of 3, 4, 9, 12, is _____

12. In this group (▲ ▲ ▲ ▲ △ △ △) the fraction shaded is _____

GO ON TO THE NEXT PAGE.

13. Make this number statement true. $\frac{3}{5} = \frac{\square}{5} + \frac{\triangle}{5}$

14. $(4 \times 18) = (4 \times 10) + (4 \times \square)$

15. 141 is an odd number. The next greater odd number is 141 + $\square$

16. In 25,063 the _____ is in the thousands place.

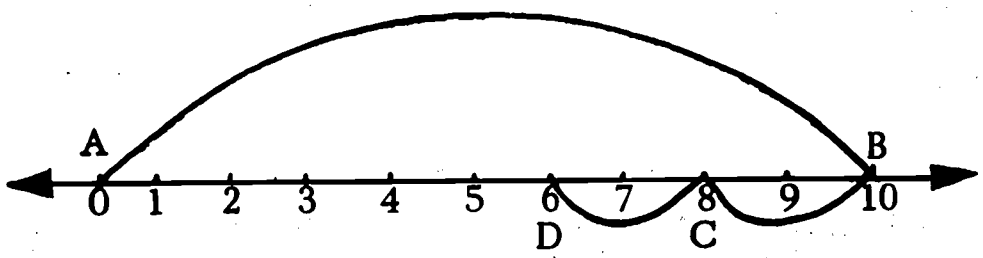
17. To the nearest hundred 4748 is _____

18. Write in numerals: seventeen thousand, forty- six _____

19. 2 yd. 1 ft. - 2 ft. = _____ yd. _____ ft.

20. $\square + \square + \triangle = 9$

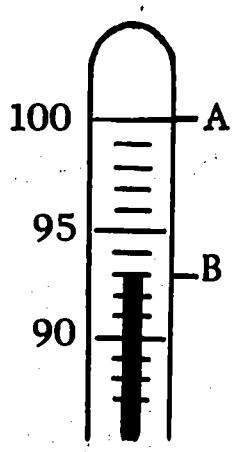
21.



On this number line, go from A to B. Then go from B to C and then to D. This shows that

$10 - (2 \times \square) =$ _____.

22.



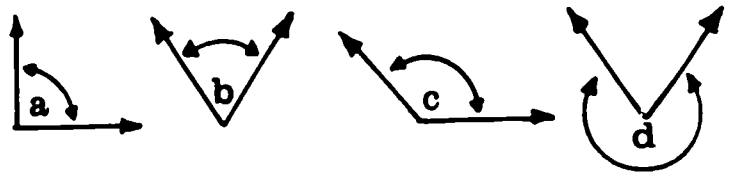
On this thermometer, if the mercury rose from B to A, then the temperature increased by

_____ degrees

TURN TO THE NEXT PAGE.

23. Mark the triangle with an X.

24. Which of the angles below appears to be a right angle? Mark it with an X.



25. .P

The greatest number of straight lines which can be drawn through the point, P, is: none one two more than two (Underline the correct answer.)

26. A . . B

The number of straight lines which can pass through both the point A and the point B is: none one two more than two (Underline the correct answer.)

27. If 6 + n = 10 then n = _____

28. If 8 − n = 2 then n = _____

29. From a class, six pupils went to the library and two to the art room. If thirty now remain, then there were _____ pupils in the class in the beginning.

In the following problems give the equation only. Use either the box, ☐, or the letter, n. Do not work out your answer. The first problem is done for you.

Example: Bill sold 8 tickets to the school concert and Betty sold 7. How many did they sell altogether? Equation: n = 8 + 7

30. From a board 12 ft. long a piece 4 ft. long is cut. What length is left?

Equation: _____

31. Mary's mother said that she lost 7 lb. and that she now weighs 130 lb. What did she weigh before?

Equation: _____

32. Divide 40 cookies equally among 5 boys.

Equation: _____

GO BACK AND CHECK YOUR WOR