DOCUMENT RESUME

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ABSTRACT

Leupold & Stevens, Inc. and Portland Community College (Oregon) cooperated in offering special math instruction as part of a workplace literacy project. A needs assessment indicated a problem in basic math skills such as simple calculations on a calculator and decimals, which were used on blueprints. Operators, set-up workers, and lead workers in parts manufacturing were the target group. Although the company was very committed to the program, it was not willing to commit company time; all instruction was fully voluntary after work hours. During the first class offering, the need for two changes became apparent: class reimbursement and narrowed content. The curriculum was self-paced and somewhat self-instructional with students working only in areas of interest. Most students took at least seven modules. (The 10-page report is followed by appendixes, including completed applications for the blueprint math class, completed learner and supervisor evaluations, and sample math skills materials. These materials include objectives, pretest, posttest, and worksheets in the areas of blueprint, decimals, fractions, percentages, right triangles, measurement, and metric conversion. A final report contains questionnaires, attendance sheets, new instructional materials, student records, and learner and supervisor evaluations.) (YLB)

THE COLUMBIA-WILLAMETTE SKILL BUILDERS CONSORTIUM

National Workplace Literacy Program (84.198)
U.S. Department of Education

FINAL PERFORMANCE REPORT

Submitted by
Portland Community College
12000 S.W. 49th Avenue
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APPENDIX V. Instructors' Reports and Sample Curriculum Materials

C. Portland Community College:

Leupold & Stevens, Inc.
D'Anne Burwell and Linda Clarke;
Megan Esler; Marjorie Taylor

Blueprint Math Applications
A Basic Skills Math Program

Blueprint Math Applications

Contents

DESCRIPTION OF PROBLEM (NEED), PURPOSE OF INSTRUCTION, AND TARGET GROUP

Company:

Leupold & Stevens, Inc. designs and manufactures optical. ballistic, scientific and electronic products. Its management is built around teamwork and since its founding in 1907, the bottom line continues to be state-of-the-art quality. It is located in Beaverton, Oregon and employs approximately 500 people. My internship involves coordinating with the human resources department to provide instruction. (Portland Community College and Leupold are partners in a Workplace Literacy Grant awarded last year. It was imperative to conduct instruction as soon as possible in order to fulfill the needs of the Grant. The pilot testers were the students.)

Problem:

A preliminary needs assessment at Leupold & Stevens indicated a problem in basic math skills. In talking with over thirty people and observing some of them, I found that many employees do not understand decimals and are unable to solve simple calculations on a calculator. Other areas of concern involve decimal conversions, recording measurements and obtaining their averages and ranges, performing metric conversions and solving basic trigonometric functions. Decimals are used throughout the company on the blueprints and employees must be able to accurately measure parts and determine if each part is made within the decimal tolerances indicated on the blueprint.

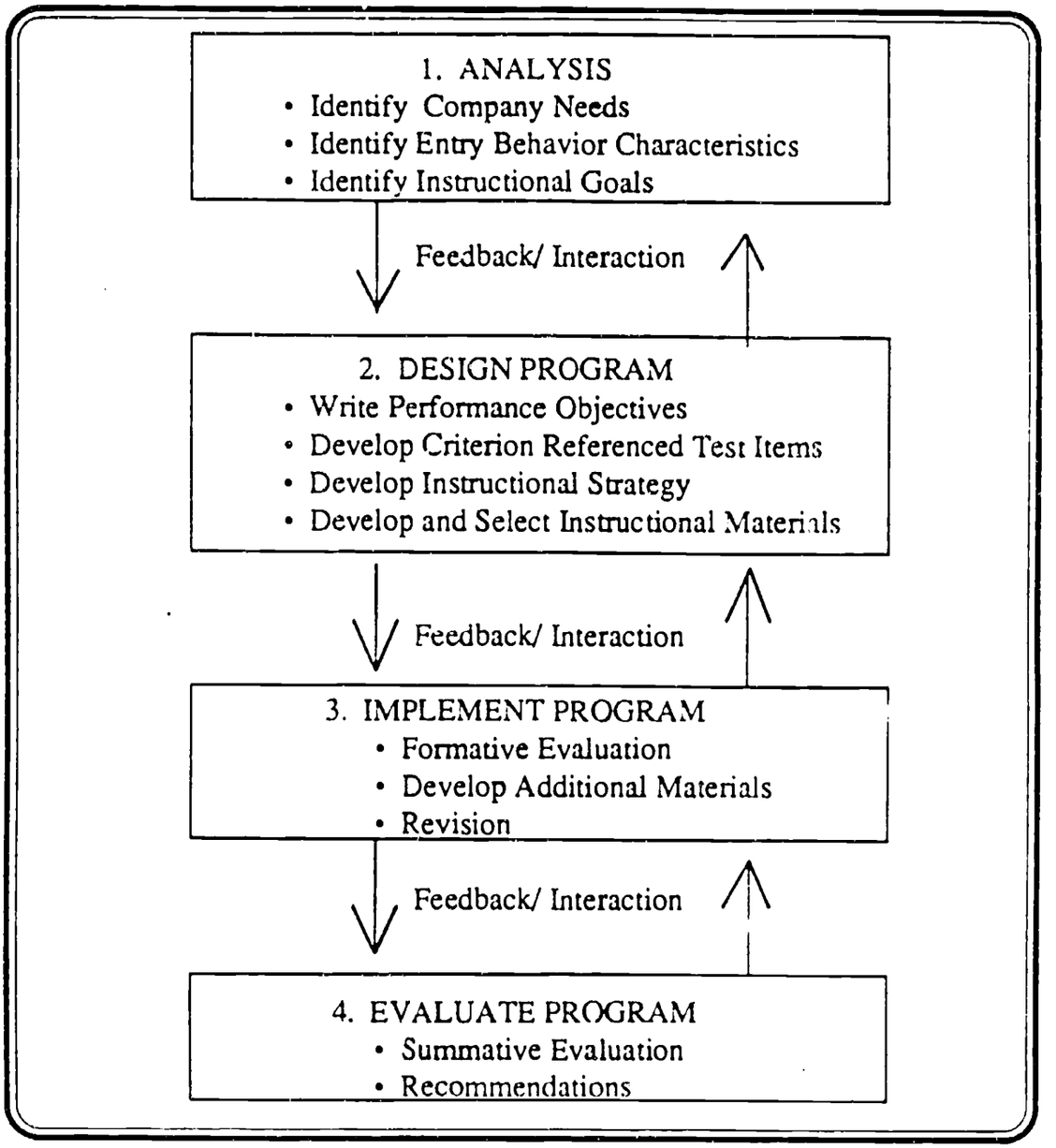
Purpose:

Special instruction will be designed and delivered that focuses on using a calculator and Leupold & Stevens' blueprints to accomplish the following goal: using a calculator, the student will demonstrate basic math applications required to understand the Leupold & Stevens blueprint. These applications involve decimals, fractions, measurement, averages, metric conversions and basic trigonometric functions.

Target Group:

Operators, set-up, and lead people in parts manufacturing would be the most appropriate group to improve in basic skills, although throughout the company there were employees interested in improving their basic math skills. It is estimated that 75-80% are high school graduates.

SYSTEM MODEL FOR LEUPOLD & STEVENS, INC.



GOALS & OBJECTIVES FOR LEUPOLD & STEVENS, INC.

Goal 1.0: Analysis

Objective 1.1: Identify company's basic math needs, the number of people who need the skills and the benefits a class could provide to the company and the workforce.

1.1.1: Focus groups with assembly & manufacturing supervisors

1.1.2: Interviews on the floor with supervisors

1.1.3: Interviews and observations of assembly and manufacturing workers.

Objective 1.2: Identify entry behavior characteristics.

1.2.1: Determine level of schooling potential students have completed

1.2.2: Interview people who have taken classes in the past

1.2.3: Observe potential students on the job

Objective 1.3: Identify instructional goals.

1.3.1: Observe workers in several departments

1.3.2: Interview / survey of target learners

1.3.3: Interview supervisors who did not attend focus groups

1.3.4: Gather forms and charts used on the job

Goal 2.0: Design Program

Objective 2.1:Write performance objectives.

2.1.1: Determine most critical math needs based on interviews and returned surveys

2.1.2: Limit to eight modules

2.1.3: Identify and consult with subject matter expert

Objective 2.2: Develop criterion referenced test items.

2.2.1: Consult with SME

2.2.2: Refine and narrow test items

Objective 2.3: Develop instructional strategy.

2.3.1: Develop self-paced, self instructional modules

2.3.2: Consult with SME, human resource people

Objective 2.4: Develop and select instructional materials.

2.4.1: Examine textbooks and materials from the company

2.4.2: Examine ABE/GED math workbooks and textbooks

2.4.3: Tailor make the materials to fit the objectives of each module

Goal 3.0: Implement the Program

Objective 3.1: Conduct formative evaluation.

3.1.1: Obtain feedback from pilot students

3.1.2: Obtain feedback from SME

Objective 3.2: Develop additional materials.

3.2.1: Based on formative evaluation, add and/ or delete instructional materials

3.2.2: Obtain additional ideas from students

Objective 3.3: Revise materials as needed.

3.3.1: Make corrections on materials

3.3.2: Eliminate some goals and/or materials

Goal 4.0: Evaluate Program

Objective 4.1: Conduct summative evaluation.

4.1.1: Obtain supervisor evaluations

4.1.2: Obtain student evaluations

4.1.3: Adjust and/or revise instructional materials

Objective 4.2: Make recommendations.

TIMELINE

Completion Date	Action Steps	Time
November 1990		
29th	Meet with Jim Gillis	1 hour
30th	Plant tour	4.5 hours
December 1990		
4th	Gather commercial materials	3 hours
6th	Focus Groups with supervisors	5.5 hours
11th	Observe workers	4 hours
13th	Observe workers/ gather forms	5.5 hours
January 1991		
2nd	Study Quality Technicians Handbook and design ISD	5 hours
7th	Make appointments	2 hours
8th	Report to Human Resources Curriculum Development	2.5 hours
10th	Interview/ observe assemblers and operators	3 hours
15th	Write proposal letter Design flyer & sign-up sheets	5 hours
17th	Goal Analysis	4 hours
18th	Goal Analysis	2 hours
21st	Instructional Goals	4 hours
25th	Instructional Goals	6 hours
27th	Performance Objectives	4 hours
29th	Make flyers/study blueprints	8 hours

Timeline, cont.

February 1991

1st	Write performance objectives	4 hours
2nd	Write performance objectives	3 hours
5th	Develop test items	4.5 hours
8th	Develop instructional strategy	6.5 hours
10th	Develop materials	5.5 hours
12th	Calculator Math	
	Develop materials	4 hours
	Implement instruction	2 hours
14th	Develop materials	1 hour
	Implement instruction	2 hours
18th	Test Items/Strategy	4 hours
19th	Blueprint Math/Symbols	
	Develop materials	3 hours
	Implement instruction	2 hours
21st	Revision/Development	3.5 hours
	Implement instruction	2 hours
26th	Decimals	
	Test Items/Development	5.5 hours
	Implement instruction	2 hours
28th	Revision/Development	5.5 hours
	Implement instruction	2 hours

March 1991

5th	Fractions	
	Test Items/Development	5 hours
	Implement instruction	2 hours
7th	Revision/Development	5.5 hours
	Implement instruction	2 hours

Timeline, cont.

March, cont.

8th	Test Items/Design	4 hours
12th	Design/Development	6 hours
	Implement instruction	2 hours
14th	Revision/Development	4 hours
	Instruction	2 hours
19th	Comparing Fractions/Decimals/Percents	
	Test Items/Design	4 hours
	Instruction	2 hours
21st	Revision/Development	4 hours
	Instruction	2 hours
26th	Revision/Development	4 hours
	Instruction	2 hours
28th	Revision/Development	4 hours
	Instruction	2 hours

April 1991

2nd	Right Triangle Formulas/Calculations	
	Test Items/Design	4 hours
	Instruction	2 hours
4th	Revision/Development	4 hours
	Instruction	2 hours
9th	Measurement/Averages/Ranges	
	Test Items/Design	4 hours
	Instruction	2 hours
11th	Revision/Development	4 hours
	Instruction	2 hours
16th	Metric Conversions	
	Test Items/Design	4 hours
	Instruction	2 hours
18th	Revision/Development	4 hours
	Instruction	2 hours
19th	Right Triangle Formulas	
	Instruction	2 hours

ISSUES AND CONSIDERATIONS

Since this project was a part of a workplace literacy grant, there were several issues I had to deal with immediately. First there were the time limitations of the grant, second, there was the time and money the company was willing to commit to the project. Other issues included the scheduling of class time and the broad area of math skills managers indicated that the workers needed.

Time Limitations:

Although the grant was awarded in January 1990, activity at Leupold & Stevens did not begin until the following December. Earlier in the year a preliminary audit had indicated an interest in upgrading basic math skills at the company. I first approached the company in December with the possibility of offering basic math skill classes. It was imperative that classes begin as soon as possible to meet the needs of the grant. I began instruction in February after little more than a month in needs assessment, task analysis, design and development. Ideally my group should have been the test group and they were aware that this was the first time this instruction had been offered. They were very helpful in offering advice and criticism concerning materials. The students the instruction had been targeted for were the minority in the group. Most of the students came from the offices where they indicated there is actually little math application!

Company Commitment:

Leupold & Stevens went above and beyond duty in offering manager time, worker time, tours, materials, and general cooperation. They have a super human resources group who were readily available for blueprints, contacts, materials and equipment. However, they were not willing to commit company time to the instruction. All instruction was fully voluntary after work hours. The best some of the managers would offer was that employees could leave half an hour early for class if they made up the time elsewhere. Some of the shifts are ten hour shifts. Attending class would add another two hours to an already long day.

Class Schedule:

Scheduling times for classes proved to be the most aggravating. Several shifts end over a three hour period in the early afternoon . Therefore it was nearly impossible to set up a class time that accommodated all schedules. Additionally, the usual classroom is up a flight of steps that are inaccessible for one of the students, so an effort was made to meet his needs, especially since he can rarely attend classes and was anxious to do so. In the end it was decided to hold classes in two rooms over a two and a half hour period in an open lab semi-self instructional manner. My SME was especially helpful in working with students in one room while I was in the other.

Broad Area:

Almost unanimously the managers and supervisors indicated that the workers needed to improve basic skills in the following areas: blueprint reading, tolerances, decimals, fractions, measurement, metric, basic algebra, calculator use, and trigonometric functions. I couldn't pin down any one or two really critical areas. So I tried to apply some aspects of most of those areas to my classes. Even this proved too much both for me and the students.

RECOMMENDATIONS

As instruction progressed, several items needed to be changed if another class were to be offered. I felt it necessary that employees receive some type of reimbursement. The class offerings were too broad; particular math skills needed to be pin-pointed. The time span of the course was too long. Revision was an on-going area and will continue throughout the classes so it isn't going to be discussed here.

Class Reimbursement:

One of the major complaints with the instructors involved with the grant was the apathy of the students. While they enjoyed the instruction at the various companies, lack of attendance was across the board at the companies that offered no reimbursement to the employee. Leupold & Stevens has a pretty good record for offering company time for training as well as reimbursement for credit classes taken outside the company. I discussed both of these issues with Jim Gillis and Anthia Swanson in human relations and suggested that attendance would increase if the company would even pay for half class time or offer some payment at the completion of classes. I reasoned that even though mine weren't for credit, they were improving basic skills that the company felt all of its employees needed to obtain. Since my classes had been well received, I think Jim was willing to offer company time for half the class. A discussion with several of the supervisors indicated that the last half hour of work could be spent twice a week in a math class.

Narrowed Content:

The first set of classes were not only too broad but too long (which may have also contributed to lack of attendance). This time I offered to Jim a month long series of only three areas: decimals, fractions, percents. These seemed to be the most important to the previous group. (Although I did offer the trig functions twice with great success.) Most of the students in the second session are from the same work area and thus have similar needs which is a definite advantage to the teacher in designing more contextually job related instruction. I chose an hour long session since the company was willing to pay only half an hour but ideally I would have chosen at least an hour and a half. These classes are also more structured than the original with more class interaction and instructor explanation.

ADDITIONAL OBSERVATIONS/ INSIGHTS

I have this smug feeling that if I had it all to do again I know just what I would change. But I have no assurance that my results would be any different or better. My audit would change and as a result everything else that followed would be different.

Audit:

Hours were spent observing all over the company and trying to gain an insight to all the jobs in manufacturing and assembly. In the future I am going to concentrate if possible on one specific area and observe in that area primarily. I will talk to the people, supervisors, and managers of that area only and develop classes for the people in that area alone. Instruction would be less generic and more within the context of the job. Coming from the community college, it was extremely difficult to let go of the broad context of any of the math areas. For example, I wanted to teach everything about decimals, when the company primarily uses four place decimals and only adds and subtracts decimals. Did my students need to read 1, 2, or 3 place decimals or know the names for place value? I'm not sure.

Revision:

Some of those hours of observation and interviewing should have been spent after the test group had gone through the classes. It was important to go back to the floor after I had been with the students and had a better handle of their skill level and needs. Time was a definite factor here since masses of materials had been developed or chosen already!

Jeff Fineman:

My SME, Jeff Fineman, was invaluable in offering advice and gathering materials for class. He was probably my most important contact since he spent much of his time in manufacturing and assembly. Many times I wasn't sure quite how to apply something we were discussing to the job and he came to my rescue. He was also my best critic when reviewing the materials I developed. Most of the deletions, additions, and rewording were at his suggestion.

Team Advantage:

I worked essentially alone on this project . Through the same grant I am working on two other projects with two other instructors. While it was valuable to be able to plan and carry out the entire project on my own, I really missed group decisions and development. My materials probably suffer because of limited assessment on the part of instructors. Design and development time were also at a premium which others could have helped lessen. To carry out the entire project as Dick and Carey suggest seems nearly impossible, even with a team.

Conclusion:

All in all, I don't think I could have asked for a better company than Leupold & Stevens. It was an excellent introduction to the business world. Everyone was thoroughly cooperative and very friendly. They even went so far as to offer me office space and a file drawer. Ideally I would like to continue developing and improving the basic math classes that I offered. The more time spent observing and learning about the company, the more job specific the course could become. One observation that I heard repeatedly was that I made the content easy to understand, unlike past trainers who had taught over the heads of so many of the workers.

(Handwritten copy faxed to NWRL)

NWRL FAX 2759489

Name:

Marjorie Taylor

Phone: 666-4480

Partnership:

Leupold & Stevens, Inc. & Portland Community College

Techniques Used To Target/Assess Instructional Needs:

1. Company/employee observation
2. Focus groups with manufacturing & assembly supervisors
3. Interviews with manufacturing & assembly workers

Instructional Goals:

Within context of company use, provide instruction in 8 basic math skill areas:
- -Calculator math
- -Blueprint Math/symbols
- -Decimals
- -Fractions
- -Comparing Fractions, Decimals, & Percents
- -Measurement, Averages, Ranges
- -Metric Conversions
- -Right Triangle Formula

Status & Timeline For Curriculum Development:

Curriculum development is on-going, approximately 8 hours weekly. (This includes revision.)

48 hours in January
44 hours in February
32 hours in March

Brief Description of Curriculum Being Developed/Used:

See goals. The curriculum is semi-self-instructional with each student working in only the areas of chosen interest and in those areas,the particular skills found lacking on the pre-tests. Most of the students are taking at least 7 modules. Some students signed up for only 1 or 2 modules. They are self-paced.

(Anticipated) Starting Date of Instruction:

February 12, 1991 to April 18, 1991

Place and Times of Instruction:

Leupold & Stevens, Inc., Beaverton, OR

Tuesday & Thursday afternoons, 3:00 - 5:30 PM

(Anticipated) Number of Students to be Served:

15 - 20 actual number

Plan for Assessing Student Progress:

1. Pre-test & post test for each module
2. Supervisor questionnaire
3. Student comments/ evaluation

Plan for Measuring Program Impact on Workplace:

(See # 2 & 3 above)

Special Problems or Issues:

Limited number of enrolled students. Company doesn't offer any incentives to take classes. Classes are all on employee time.

Comments:

This company has been a pleasure to work with. I'm frustated that the people who really need the math probably didn't sign up. The classes are a review for most of the students & they seem to really enjoy them. Two students may really profit from the classes as their skills were really low.

AUDIT

Focus Group

Leupold & Stevens Forms

Proposal Letter

Class Announcements

Schedules

Leupold & Stevens, Inc.

Focus Group Agenda

Manufacturing Supervisors

December 6, 1990

Purpose: Regarding a possible basic math skills class, we will identify the specific math skills needed, the number of workers who need the skills, and the benefits a class could provide to the company, you, and your people.

I. Introductions
   - A. Trainer-facilitator
   - B. Participant introductions
   - C. Purpose of meeting
   - D. Why participants were selected
   - E. Ground Rules: Confidentiality
     Creativity
     Acceptance of all ideas

II. Brainstorming

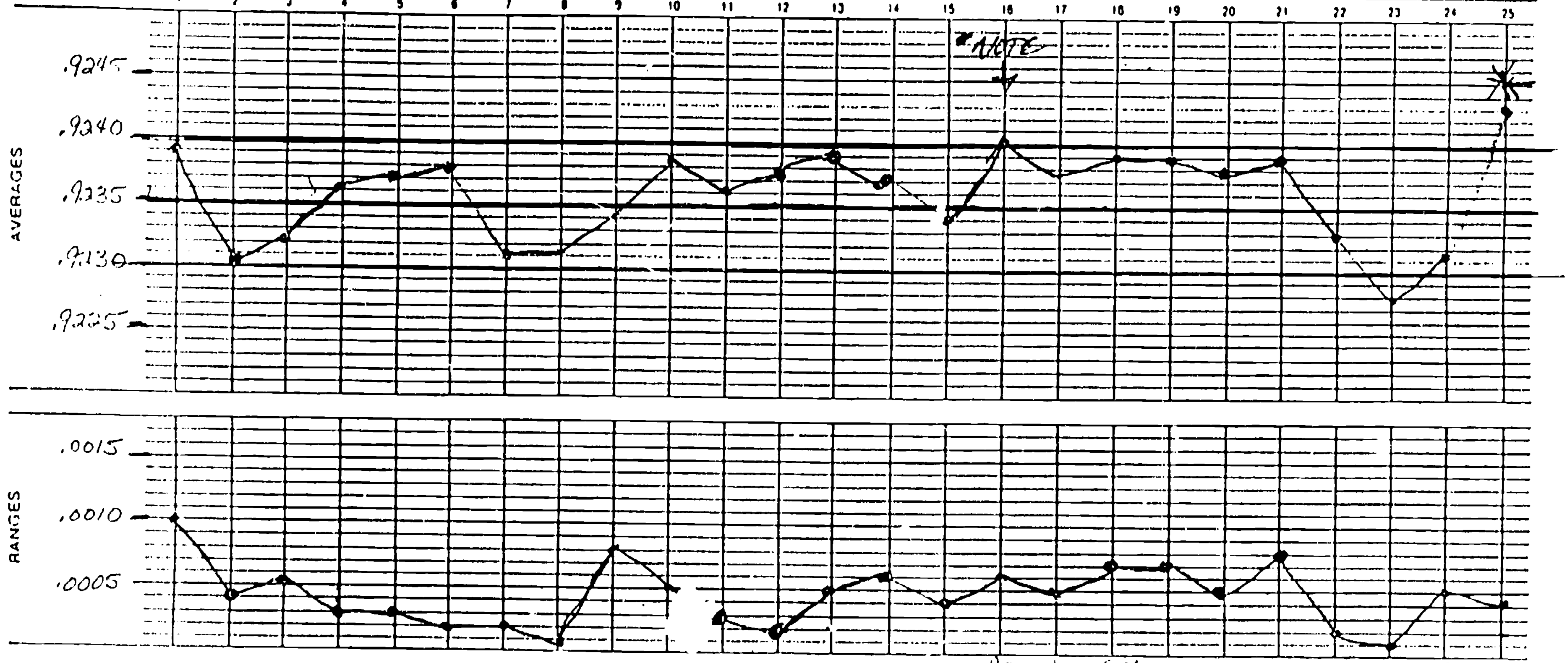
III. Expanding

IV. Prioritizing

V. Closing
   - A. Summary/final comments
   - B. Evaluation
   - C. How the information will be used.

VARIABLES CONTROL CHART (X̄ & R)

PART NAME (PRODUCT)	O.B.J. Shelf[illegible] tube 3.5X10-50 BL
Machine	#-35
Gauge	Tri Roll
Process, Sampling	5 Random Samples / X per shift — R.G.S. 7/17/90
PART NO	45836-F
CHART NO	02-
SPECIFICATION LIMITS	.945-.948 I.D.; .9245/.9225 P.D.; .9425/.9405 over .012 wires
UNIT OF MEASURE	.0001
ZERO EQUALS	



	1	2	3	4	5	6	7	8	9	10	11	12	13
DATE	7-15		7-16	7-16	7-16	7-16	7/16/90	7/16/90	7/16/90	7-16	7-17	7-17	7-17
TIME	7:?? PM	7:?? PM	1:30 AM	3:20	5:30	7:00	8:?? AM	1:30 PM	5:?? PM	8:30 PM	1:00 AM	3:00 AM	5:00 AM
SAMPLE MEASUREMENTS 1	.9229	.9232	.9234	.9234	.9238	.9237	.9231	.9231	.9230	.9240	.9237	.9237	.9238
2	.9225	.9231	.9234	.9237	.9235	.9239	.9231	.9231	.9236	.9235	.9235	.9237	.9240
3	.9239	.9230	.9230	.9236	.9238	.9237	.9230	.9231	.9232	.9239	.9236	.9237	.9238
4	.9227	.9229	.9230	.9237	.9239	.9238	.9232	.9231	.9234	.9240	.9236	.9237	.9236
5	.9235	.9232	.9235	.9235	.9237	.9238	.9231	.9[illegible]	.9235	.9240	.9238	.9235	.9236
SUM	4.6196		4.6163	4.6179	4.6187	4.6189	4.61[illegible]	4.6156	4.6171	4.6194	4.618	4.6183	4.6188
AVERAGE, X̄	.92392	.92306	.9232	.9236	.9237	.9238	.9231	.92312	.92342	.92388	.9236	.9237	.9238
RANGE, R	.0010	.0004	.0005	.0003	.0003	.0002	.0002	.0001	.0008	.0005	.0003	[illegible]	.0004
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	14	15	16	17	18	19	20	21	22	23	24	25
DATE	7-17	7/17	7-17	7-[illegible]	7-[illegible]	7-18	7-18	7-18	7/19/90	7/19/90	7-19	
TIME	7:00 AM	11 AM	3:30 PM	[illegible]	[illegible]	11:00	4:30	6:30	8:00 AM	NOON	7:00	10:3[illegible]
SAMPLE MEASUREMENTS 1	.9240	.9235	.9240	.9238	.9235	.9239	.9236	.9240	.9232	.9228	.9235	.9245
2	.9237	.9236	.9242	.9239	[illegible]	.9236	.9237	.9238	.9233	.922[illegible]	.9232	.9244
3	.9239	.9236	.9243	.9237	[illegible]	.9234	.9237	.9244	.9234	.922[illegible]	.9231	.9242
4	.9235	.9235	.9240	.9240	.924[illegible]	.9238	.9238	.9236	.9233	[illegible]	.9230	.9242
5	.9236	.9232	.9237	.9235	.924[illegible]	.9241	.9241	.9232	.9233	.9228	.9234	.9241
SUM	4.6187	4.617[illegible]	4.6202	4.6189	[illegible]	4.619[illegible]	4.6189	4.6195	[illegible]	[illegible]	X	4.6215
AVERAGE, X̄	.9237	.9234	.92404	.92378	[illegible]	.9239	.9238	.9239	.9233	.92276	.92314	.9243
RANGE, R	.0005	.0004	.0006	.000[illegible]	.0007	.0007	.0005	.0008	.0002	.0001	[illegible]	[illegible]
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ASSIGNMENT AND CONTROL SCHEDULE
REPAIR DEPARTMENT 6045

WEEK: 49 DATE: 12-7-90

WORK STATION	EMPLOYEE	2 HR.	4 HR.	6 HR.	E.O.S.	TOTAL	REMARKS
RECEIVING							
Morgan	Open	21	35	—	—	56	1.9
Morgan	Type					74	2.0
INSPECTION I	Sharon	7 / 3	6 / 6	2 / 3	10 / 2	25 / 14	4.9
	Jackie	4 / 2	— / —	— / —	— / —	4 / 2	.7
		/	/	/	/	/	
INSPECTION II	Sharon	—	3	2	—	5 (W)	.8 W.C.
REPAIR	Jeri	5 /	2 /	3 /	1 /	11 /	7.7
	Linda	3 /	3 /	2 /	2 /	10 /	9.1
	Vickie	— /	— /	1 /	— /	1 /	.3
	Jackie	3 /	3 /	3 /	3 /	12 /	6.7
	Mony	5 /	3 /	1 /	3 /	12 /	8.4 2 Coak.
	Steve L.	5	2	2	2	11	9.4 1 Coak
COLL.	Jeri / Pita	3 / 33	— / 25	— / 20	— / 12	3 / 90	.3 / 6.7
Final	Sharon / Jeri J.				6 / 11	6 / 11	.8 / 1.1
Fill-Wt	Jeri / Linda						.1 / 2.5
	→ Pita						3.3
Final	Vickie	33	20	19	7	79	7.9

Special Projects			0022	paperwo	Assist	sub-ass	0042	Trans.	File			
	Mary Di + V	6.3										
	Jan	1.9										
	Jackie		.4									
	Morgan							1.5	3.6			
	Vickie						2.0					
	Mary										2.5	

ASSIGNMENT AND CONTROL SCHEDULE
REPAIR DEPARTMENT 6045

WEEK: ____________ DATE: ____________

WORK STATION	EMPLOYEE	2 HR.	4 HR.	6 HR.	E.O.S.	TOTAL	REMARKS
RECEIVING							
	Open						
	Type						
INSPECTION I							
INSPECTION II							
REPAIR	Clifton	5	4	3	—	12	6.0
	Steve K.	6	4	3	1	14	9.2
COLL.							
Final	[illegible] [illegible] [illegible]						2.3
Fill-wt							

Special Projects		0032	paperwo	Assist	sub-ass	0042	Trans.	File				

ASSIGNMENT AND CONTROL SCHEDULE
REPAIR DEPARTMENT 6045

WEEK: ________ DATE: ________

WORK STATION	EMPLOYEE	2 HR.	4 HR.	6 HR.	E.O.S.	TOTAL	REMARKS
RECEIVING							
	Open						
	Type						
INSPECTION I							
INSPECTION II							
REPAIR							
COLL.							
Final							
Fill-wt							

Special Projects			0032	paperwo	Assist	sub-ass	0042	Trans.	File			

Week, 49 — Scope Repair

	Open / HRS	Per Hour	Type / HRS	Per Hour	Insp I / HRS	Per Hour	Insp. II / HRS	Per Hour	W.C / T.I	0010 / 130-140	Assist / HR:	Dirt check / HRS	0032 / HRS	Trans HRS	File HRS
Morgan	279 / 12.9		348 / 15.5											6.0	7.6
Dee	70 / 2.1												4.4		
Sharon					152 / 22.0				13 / 5						
Jeri					192 / 17.7		71 / 3.5								
Jackie					106 / 15.3							1.4	2.0		
Jan												15.6			
Peggy										12.0		19.5	9.5		
Dickie											1.3				

12-13-90
R. R.

NAME Thuy Nguyen DATE 12-12-90

	STD	TOTAL	HOURS	AVERAGE
EYEPIECE	24			
EYEPIECE PREP	213			
SINGLE EYEPIECE	149			
OBJECTIVE	50	288	6.0	
OBJECTIVE PREP	167	288	2.4	
SYSTEM	24			
SYSTEM PREP				
BARREL	24	2	0.4	
MAIN TUBE PREP	135			
PAINT MAIN TUBE	85			
EYESHELL PREP	500			
EYESHELL O-RING	300			
ADJUSTMENT	220			
TARGET ADJUSTMENTS	13			
BUILD #1 repair		2	0.4	
BUILD #2 0018			0.2	
BUILD #3				
BUILD #4				

0088 .6

10 HRS

TOTAL HOURS should add up to 9.4

NAME Annie DATE 12-12-90

	STD	TOTAL	HOURS	AVERAGE
EYEPIECE	24	60	6.3	
EYEPIECE PREP	213	80	0.5	
SINGLE EYEPIECE	149			
OBJECTIVE	50			
OBJECTIVE PREP	167			
SYSTEM	24			
SYSTEM PREP				
BARREL	24			
MAIN TUBE PREP	135			
PAINT MAIN TUBE	85			
EYESHELL PREP	500			
EYESHELL O-RING	300			
ADJUSTMENT	220			
TARGET ADJUSTMENTS	13			
BUILD #1				
BUILD #2				
BUILD #3				
BUILD #4		1	0.3	

0088 0.3 – glasses

Repairs + 12x 2.0

0088 .6

10 HRS

TOTAL HOURS Should add up to 9.4

Operation Standards

NAME _____ DATE _____

	STD	TOTAL	HOURS	AVERAGE
EYEPIECE	24			
EYEPIECE PREP	213			
SINGLE EYEPIECE	149			
OBJECTIVE	50			
OBJECTIVE PREP	167			
SYSTEM	24			
SYSTEM PREP				
BARREL	24			
MAIN TUBE PREP	135			
PAINT MAIN TUBE	85			
EYESHELL PREP	500			
EYESHELL O-RING	300			
ADJUSTMENT	220			
TARGET ADJUSTMENTS	13			
BUILD #1				
BUILD #2				
BUILD #3				
BUILD #4				

0088

.6

10 HRS

TOTAL HOURS should add up to 9.4

I906: (%0) @IF($C906=0.0,G906/C906) SHEET

WORK WEEK	TOTAL REPAIRED	SCOPES REPAIRED	MECHANICAL REJECTS	MECHANICAL REJECTS %	DIRT REJECTS	DIRT REJECTS %	
1	139	113	14	10%	12	9%	3
2	191	169	7	4%	15	8%	3
3	158	145	5	3%	8	5%	3
4	234	210	7	3%	17	7%	3
5	242	206	14	6%	22	9%	3
6	267	226	19	7%	22	8%	3
7	212	173	11	5%	28	13%	3
8	240	214	13	5%	13	5%	3
9	248	223	6	2%	19	8%	3
10	305	271	17	6%	17	6%	3
11	229	207	6	3%	16	7%	3
12	188	173	9	5%	6	3%	3
13	324	291	9	3%	24	7%	3
14	238	197	22	9%	19	8%	3
15	308	295	0	0%	13	4%	3
16	137	122	4	3%	11	8%	3
17	198	186	4	2%	8	4%	3

TOTAL

13-Dec-90 11:42 AM

M906: (%0) @IF($C906=0.0,K906/C906) SHEET

WORK WEEK	TOTAL REPAIRED	SCOPES REPAIRED	MECHANICAL REJECTS	MECHANICAL REJECTS %	DIRT REJECTS	DIRT REJECTS %	
1	139	113	14	10%	12	9%	3
2	191	169	7	4%	15	8%	3
3	158	145	5	3%	8	5%	3
4	234	210	7	3%	17	7%	3
5	242	206	14	6%	22	9%	3
6	267	226	19	7%	22	8%	3
7	212	173	11	5%	28	13%	3
8	240	214	13	5%	13	5%	3
9	248	223	6	2%	19	8%	3
10	305	271	17	6%	17	6%	3
11	229	207	6	3%	16	7%	3
12	188	173	9	5%	6	3%	3
13	324	291	9	3%	24	7%	3
14	238	197	22	9%	19	8%	3
15	308	295	0	0%	13	4%	3
16	137	122	4	3%	11	8%	3
17	198	186	4	2%	8	4%	3

TOTAL

13-Dec-90 11:43 AM

0906: (%0) @IF($C906=0,0,E906/C906) SHEET

	TOTAL REPAIRED	SCOPES REPAIRED	MECHANICAL REJECTS	MECHANICAL REJECTS %	DIRT REJECTS	DIRT REJECTS %	OVERALL YIELD %	
906	139	113	14	10%	12	9%	81%	3
907	191	169	7	4%	15	8%	88%	3
908	158	145	5	3%	8	5%	92%	3
909	234	210	7	3%	17	7%	90%	3
910	242	206	14	6%	22	9%	85%	3
911	267	226	19	7%	22	8%	85%	3
912	212	173	11	5%	28	13%	82%	3
913	240	214	13	5%	13	5%	89%	3
914	248	223	6	2%	19	8%	90%	3
915	305	271	17	6%	17	6%	89%	3
916	229	207	6	3%	16	7%	90%	3
917	188	173	9	5%	6	3%	92%	3
918	324	291	9	3%	24	7%	90%	3
919	238	197	22	9%	19	8%	83%	3
920	308	295	0	0%	13	4%	96%	3
921	137	122	4	3%	11	8%	89%	3
922	198	186	4	2%	8	4%	94%	3
							TOTAL	

13-Dec-90 11:43 AM

S906: (F2) @IF($Q906=0,0,E906/Q906) SHEET

	MECHANICAL REJECTS	MECHANICAL REJECTS %	DIRT REJECTS	DIRT REJECTS %	OVERALL YIELD %	HOURS WORKED	NET SCOPES PER HOUR	
906	14	10%	12	9%	81%	85.0	1.33	3
907	7	4%	15	8%	88%	95.5	1.77	3
908	5	3%	8	5%	92%	89.5	1.62	3
909	7	3%	17	7%	90%	130.3	1.61	3
910	14	6%	22	9%	85%	153.9	1.34	3
911	19	7%	22	8%	85%	169.1	1.34	3
912	11	5%	28	13%	82%	138.8	1.25	3
913	13	5%	13	5%	89%	172.9	1.24	3
914	6	2%	19	8%	90%	172.1	1.30	3
915	17	6%	17	6%	89%	180.9	1.50	3
916	6	3%	16	7%	90%	139.8	1.48	3
917	9	5%	6	3%	92%	125.6	1.38	3
918	9	3%	24	7%	90%	184.7	1.58	3
919	22	9%	19	8%	83%	140.3	1.40	3
920	0	0%	13	4%	96%	193.2	1.53	3
921	4	3%	11	8%	89%	93.0	1.31	3
922	4	2%	8	4%	94%	132.0	1.41	3
							TOTAL	

13-Dec-90 11:44 AM

January 15, 1991

Jim Giles
Anthia Swanson
Leupold & Stevens, Inc.
P.O. Box 688
Beaverton, Oregon 97075-0688

Dear Jim and Anthia:

Thank you for permitting me to visit Leupold & Stevens this past month. I really appreciate you and the many people who gave time to show and explain their jobs to me.

There are three main areas I would like to address in this letter. First, I would like to thank specific people. Second, I would like to propose an instructional goal. Third, I will detail my current activities and ask for Anthia's help on a couple of items.

I especially thank Fran Wichman for giving me the grand tour of Leupold & Stevens. My meetings with the assembly and manufacturing supervisors were instrumental to my analysis. Sheri Canon, Peggy Leathers, and Ric Rosenbaum were great letting me follow and watch them. Pat Renner, George Watson, Harry Wilson and many others throughout the company provided valuable input and I thank them.

The area I see the most potential in is structuring the instructional goal around the Leupold & Stevens blueprint. Therefore, I propose the instructional goal be as follows:

> Using a calculator, employees will demonstrate basic math applications found on a Leupold & Stevens blueprint.

Upon completing instruction the student will be able to do the following:

* Complete basic operations on a calculator
* Read and demonstrate basic decimal operations
* Convert decimals to fractions
* Measure accurately with calipers, record the measurements, and obtain averages and ranges
* Perform metric conversions
* Solve basic trigonometric functions

Since adults have such varied needs, the class will be set up as a lab with open entry and exit. Students will choose the particular areas they want to grow in. The first class will determine each student's goals and an individual program will be set up to help each student accomplish the goals in the time it takes him to accomplish them.

We discussed conducting instruction through February and March. I would like to leave the ending date open and offer the class as long as there are students working toward their individual goals which may or may not be the end of March. Does this sound okay? Do you feel these objectives will benefit assembly and manufacturing? I want to be sure I meet Leupold & Stevens' needs.

Presently I am formulating specific objectives and the tasks involved in accomplishing them, developing means of evaluating the objectives, and beginning to design the instruction. Anthia, I am going to need a variety of blueprints as well as someone either to assist me in class with the instrument readings or teach me how to accurately read them.

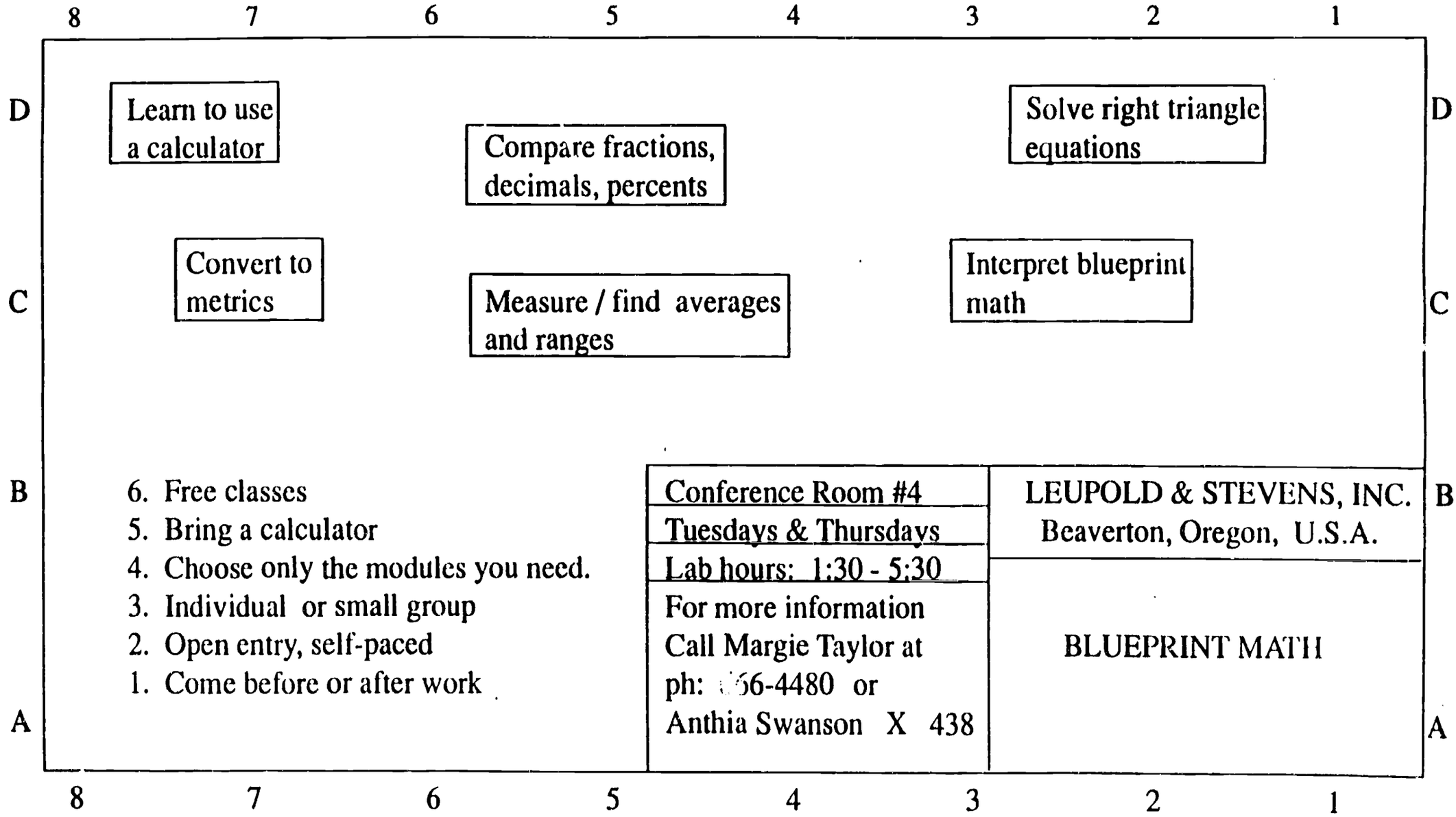
Jeff Fineman expressed an interest in helping me with any instruction. I will call him next week.

Two items are attached. One is an idea for a flyer advertising the class. The other is a formal statement of the problem, purpose of instruction, and the target group. I will be popping in and out and will keep you posted on my progress. Thank you!

Sincerely,

Margie Taylor

cc: Nikki Sullivan - PCC
Mary Covington - Advisor, OSU


8 7 6 5 4 3 2 1
D
C
B
A
Learn to use a calculator
Compare fractions, decimals, percents
Solve right triangle equations
Convert to metrics
Measure / find averages and ranges
Interpret blueprint math
6. Free classes
5. Bring a calculator
4. Choose only the modules you need.
3. Individual or small group
2. Open entry, self-paced
1. Come before or after work
Conference Room #4
Tuesdays & Thursdays
Lab hours: 1:30 - 5:30
For more information
Call Margie Taylor at
ph: 66-4480 or
Anthia Swanson X 438
LEUPOLD & STEVENS, INC.
Beaverton, Oregon, U.S.A.
BLUEPRINT MATH

totals across all Times

Free Classes *Starting Soon*

BLUEPRINT MATH APPLICATIONS

Here's the opportunity to brush up on the math skills you've forgotten!
Here's the opportunity to improve the math you use at Leupold & Stevens!

Math applications taken from the L & S blueprint will be emphasized. Classes are scheduled for Tuesday and Thursday afternoons before or after your shift. Classes will be one on one or small group aimed for each person's specific needs. Sign up only for the modules that interest you.

Indicate below the module or modules you wish to take. You will be notified of the exact time and dates of your classes within the next two weeks.

X	*Module*	*Indicate your ability with an X below* Review	Some Help	Lots of Help
10	Calculator Math Learn calculator basics	II	IIII	III
18	Blueprint Math / Symbols Using the L & S blueprint	II	IIII	IIIIIIIII
4	Decimals	I	IIII	III
9	Fractions	I	III	IIII
12	Comparing Fractions, Decimals, Percents	IIII	IIII	IIII
10	Measurement / Averages / Ranges Using L & S figures	II	IIII	IIII
10	Metric Conversions	I	III	IIII
15	Right Triangle Formulas / Calculations	II	III	IIII IIII
	Other Needs _____			

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 3:30 - 5:00

Name_____ Phone #_____

Return to Anthia Swanson Questions? Call Margie Taylor PH: 666-4480

3:30 - 5:00

Free Classes *Starting Soon*

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	Calculator Math Learn calculator basics 3	I	I	I
	Blueprint Math / Symbols Using the L & S blueprint 10	II	IIII	IIII
	Decimals 6	I	III	II
	Fractions 6	I	III	II
	Comparing Fractions, Decimals, Percents 7	II	II	III
	Measurement / Averages / Ranges Using L & S figures 8	II	III	III
	Metric Conversions 7	I	III	III
	Right Triangle Formulas / Calculations 6	I	II	III
	Other Needs _____ Int Algebra 1	I		

4:30

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 (3:30 - 5:00)

Name_____ Phone #_____

Return to Anthia Swanson

Questions? Call Margie Taylor PH: 666-4480

people who signed up for only 1 or 2 areas

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	Calculator Math Learn calculator basics			II
	Blueprint Math / Symbols Using the L & S blueprint			III
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			I
	Metric Conversions			
	Right Triangle Formulas / Calculations			IIII
	Other Needs _____			

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 3:30 - 5:00

Name_____ Phone #_____

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3:00 - 4:30
&
3:00 - 4:30

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	Blueprint Math / Symbols Using the L & S blueprint			
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
	Right Triangle Formulas / Calculations			
	Other Needs _____			

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 3:30 - 5:00

Name_____ Phone #_____

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X	*Module*	*Indicate your ability with an X below* Review	Some Help	Lots of Help
?	Calculator Math Learn calculator basics			
X	Blueprint Math / Symbols Using the L & S blueprint			X
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents	X		
	Measurement / Averages / Ranges Using L & S figures			X
X	Metric Conversions			X
	Right Triangle Formulas / Calculations			X
X	Other Needs algebra	X		

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 (3:30 - 5:00)

Name _____ Phone #_____

Return to Anthia Swanson Questions? Call Margie Taylor PH: 666-4480

Anthia:
Fig. Hrs. are
4:00 - 3:30. No Problem here.

Free Classes *Starting Soon*

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* 1.	Calculator Math Learn calculator basics		✓	
	Blueprint Math / Symbols Using the L & S blueprint			
3.	Decimals		✓	
	Fractions			
4.	Comparing Fractions, Decimals, Percents		✓	
	Measurement / Averages / Ranges Using L & S figures			
2	Metric Conversions			✓
	Right Triangle Formulas / Calculations			
	Other Needs _____			

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 3:30 - 5:00

Name _____ Phone #_____

Return to Anthia Swanson Questions? Call Margie Taylor PH: 666-4480

Anthia, * is the back up for the switchboard. Class time from 4:30-6:00 pm would be the best. If not possible I need to know schedule in advance to make arrangements for someone to cover.

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	Calculator Math Learn calculator basics			
X	Blueprint Math / Symbols Using the L & S blueprint	X		
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
X	Measurement / Averages / Ranges Using L & S figures	X		
X	Metric Conversions	X		
X	Right Triangle Formulas / Calculations	X		
	Other Needs _____			

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 3:30 - 5:00

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	Calculator Math Learn calculator basics			
X	Blueprint Math / Symbols Using the L & S blueprint			X
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
	Right Triangle Formulas / Calculations			
	Other Needs _____			

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 3:30 - 5:00

Name _____ Phone #_____

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X	*Module*	*Indicate your ability with an X below* Review	Some Help	Lots of Help
	Calculator Math Learn calculator basics	X		
X	Blueprint Math / Symbols Using the L & S blueprint		X	
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			X
	Metric Conversions			
	Right Triangle Formulas / Calculations			
	Other Needs _____			

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 3:30 - 5:00

Name _____ Phone _____

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X	Calculator Math Learn calculator basics		X	
X	Blueprint Math / Symbols Using the L & S blueprint			X
	Decimals			
	Fractions			
X	Comparing Fractions, Decimals, Percents	X		
X	Measurement / Averages / Ranges Using L & S figures			X
X	Metric Conversions			X
X	Right Triangle Formulas / Calculations			X
	Other Needs _____			

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 3:30 - 5:00

Name_____ Phone #_____

Return to Anthia Swanson Questions? Call Margie Taylor PH: 666-4480

Anthia: can work
7:00 - 3:30 (Reg. Hrs. 8:00 - 4:30)
no problem here, but would
be nice to have a class from 4:30 - 6:00

Free Classes *Starting Soon*

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	Calculator Math Learn calculator basics			
	Blueprint Math / Symbols Using the L & S blueprint			
X	Decimals		X	
X	Fractions		X	
X	Comparing Fractions, Decimals, Percents		X	
X	Measurement / Averages / Ranges Using L & S figures		X	
X	Metric Conversions		X	
X	Right Triangle Formulas / Calculations			
	Other Needs _____			

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 3:30 - 5:00

Name_____ Phone #_____

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	Blueprint Math / Symbols Using the L & S blueprint			
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			
X	Metric Conversions			X
	Right Triangle Formulas / Calculations			
	Other Needs _____			

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 (3:00 - 4:30) 3:30 - 5:00

Name_ _Phone #_

Return to Anthia Swanson Questions? Call Margie Taylor PH: 666-4480

Stevens MKTing
Hydro equip

Free Classes *Starting Soon*

BLUEPRINT MATH APPLICATIONS

Here's the opportunity to brush up on the math skills you've forgotten!
Here's the opportunity to improve the math you use at Leupold & Stevens!

Math applications taken from the L & S blueprint will be emphasized. Classes are scheduled for Tuesday and Thursday afternoons before or after your shift. Classes will be one on one or small group aimed for each person's specific needs. Sign up only for the modules that interest you.

Indicate below the module or modules you wish to take. You will be notified of the exact time and dates of your classes within the next two weeks.

X	*Module*	*Indicate your ability with an X below* Review	Some Help	Lots of Help
	Calculator Math Learn calculator basics			
	Blueprint Math / Symbols Using the L & S blueprint			
	Decimals			
X	Fractions		X	
X	Comparing Fractions, Decimals, Percents		X	
	Measurement / Averages / Ranges Using L & S figures			
X	Metric Conversions		X	
X	Right Triangle Formulas / Calculations		X	
	Other Needs _____			

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1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 (3:30 - 5:00)

Name ____Phone #_____

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X	Blueprint Math / Symbols Using the L & S blueprint			X
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			
X	Metric Conversions			X
	Right Triangle Formulas / Calculations			
	Other Needs _____			

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FEB. 6

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	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
~~X~~	Right Triangle Formulas / Calculations			X
	Other Needs _____			

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X	Blueprint Math / Symbols Using the L & S blueprint			X
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
X	Right Triangle Formulas / Calculations			X
	Other Needs _____ _____			

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	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
X	Right Triangle Formulas / Calculations			X
	Other Needs _____			

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 3:30 - 5:00

Name _____ Phone #_____

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	Calculator Math Learn calculator basics			
X	Blueprint Math / Symbols Using the L & S blueprint			X
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
	Right Triangle Formulas / Calculations			
	Other Needs _____			

Circle the best time for you to attend classes:

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Name___ ____Phone #_____

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	Calculator Math Learn calculator basics			
X	Blueprint Math / Symbols Using the L & S blueprint			X
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
	Right Triangle Formulas / Calculations			
	Other Needs _____			

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	Calculator Math Learn calculator basics			
X	Blueprint Math / Symbols Using the L & S blueprint			X
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
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1	Calculator Math Learn calculator basics		X	
	Blueprint Math / Symbols Using the L & S blueprint			
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
	Right Triangle Formulas / Calculations			
	Other Needs _____			

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Name _____ Phone #___ _____

Return to Anthia Swanson Questions? Call Margie Taylor PH: 666-4480

Anthia - We have only one class that will cause no problems between - But if the class was 4:30 - 6:00 then it would be a problem. Do you get the idea I want the class @ 4:30 — ☺ whatever Jeb

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	Blueprint Math / Symbols Using the L & S blueprint			
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
	Right Triangle Formulas / Calculations			
	Other Needs _____			

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	Calculator Math Learn calculator basics			
X	Blueprint Math / Symbols Using the L & S blueprint		X	
X	Decimals		X	
X	Fractions		X	
X	Comparing Fractions, Decimals, Percents			X
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
	Right Triangle Formulas / Calculations			
	Other Needs _____			

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	Calculator Math Learn calculator basics			
X	Blueprint Math / Symbols Using the L & S blueprint		X	
X	Decimals	X		
X	Fractions	X		
X	Comparing Fractions, Decimals, Percents	X		
X	Measurement / Averages / Ranges Using L & S figures		X	
X	Metric Conversions		X	
X	Right Triangle Formulas / Calculations			X
	Other Needs _____			

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X	Blueprint Math / Symbols Using the L & S blueprint			
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
X	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
	Right Triangle Formulas / Calculations			
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FEB. 6

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	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
X	Right Triangle Formulas / Calculations		X	
	Other Needs _____			

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X	Calculator Math Learn calculator basics		X	
X	Blueprint Math / Symbols Using the L & S blueprint		X	
X	Decimals		X	
X	Fractions		X	
X	Comparing Fractions, Decimals, Percents			X
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
	Right Triangle Formulas / Calculations			
	Other Needs _____			

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	Blueprint Math / Symbols Using the L & S blueprint			
X	Decimals			X
X	Fractions			X
X	Comparing Fractions, Decimals, Percents			X
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
	Right Triangle Formulas / Calculations			
	Other Needs _____			

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X	Calculator Math Learn calculator basics	✓		
	Blueprint Math / Symbols Using the L & S blueprint			
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
X	Right Triangle Formulas / Calculations	✓		
	Other Needs _____			

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	Calculator Math Learn calculator basics			
X	Blueprint Math / Symbols Using the L & S blueprint		X	
X	Decimals		X	
X	Fractions		X	
X	Comparing Fractions, Decimals, Percents		X	
X	Measurement / Averages / Ranges Using L & S figures		X	
X	Metric Conversions		X	
X	Right Triangle Formulas / Calculations		X	
	Other Needs _____			

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 (3:30 - 5:00)

Name _____ Phone # _____

Return to Anthia Swanson

Questions? Call Margie Taylor PH: 666-4480

Blueprint Math Applications

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Name_____

Phone_____

Job Title Drill Press Oper Length of time at Leupold & Stevens 11 1/2 yr

Single Head of Household: yes X no____

1. How do you use math in your present job? to figure out where to drill holes on hydro parts

2. What are your most important math needs? 1 — 6 -

3. How will improving your math skills improve your job performance?
By understanding blue prints

4. Will improving your math skills help your chances of moving to another job position?
What position do you hope to obtain? A operator

5. What is most important for you to accomplish by taking these math classes?
to become an A operator

Skillbuilders MT 2/8/91

Blueprint Math Applications Skillbuilders MT 2/8/91

Name _____ Entry Date _____

Module	Pre-Test	Activities					Post Test
		1	2	3	4	5	
1. Calculator Math	[redacted] 35/50	✓	✓	✓	✓	✓	[redacted] 45/45
	[redacted]						
2. Blueprint Math/Symbols	[redacted] 22/25						17/20 [redacted]
3. Decimals	2/26/91 16/43 [redacted]	12/12 Writ. Dec.	20/20 P19	22/22 P18	12/15 Equiv. Dec		[redacted]
4. Fractions 23/23 Wr. dec. Frac.	[redacted]	[redacted]	[redacted]	6/6	18/22	6/10	33/37 = [redacted]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
5. Comparing Fractions, Decimals, Percents							
6. Measurement/Averages/Ranges							
7. Metric Conversions							
8. Right Triangle Formulas/Calculations [redacted]		[illegible]					
		[illegible]					

Blueprint Math Applications

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Name _____

Phone _____

Job Title Electronics Assembler Length of time at Leupold & Stevens 3yrs. 10mo.

Single Head of Household: yes X no ____

1. How do you use math in your present job? Calibration

2. What are your most important math needs? Basic Calculator at this time.

3. How will improving your math skills improve your job performance?
I would be able to solve problems myself.

4. Will improving your math skills help your chances of moving to another job position?
What position do you hope to obtain? not At this time.

5. What is most important for you to accomplish by taking these math classes?
Just by knowing the calculator.

Skillbuilders MT 2/8/91

Blueprint Math Applications Skillbuilders MT 2/8/91

Name ____________ Entry Date 2/14/91

Module	Pre-Test	Activities 1	2	3	4	5	Post Test
✓ 1. Calculator Math	Calc. Practice 2/14/91 [redacted]	✓ 2/14	✓	✓	✓	✓	[redacted]
2. Blueprint Math/Symbols							
✱ 3. Decimals [illegible]	2/26/91 20/45 [redacted] decimal values	1/12 [illegible]	20/21 PS/16	/22 [illegible] /17	17/18 comp dec	32/32 writ dec	[redacted] [illegible] /91
✱ 4. ~~Fractions~~ Graphing	[redacted]	2/4 Reading Graph	1/4 Using Formula	Applying Formula			[redacted]
5. Comparing Fractions, Decimals, Percents							
6. Measurement/Averages/Ranges							
7. Metric Conversions							
8. Right Triangle Formulas/Calculations							

Blueprint Math Applications

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Name_____

Phone_____

Job Title machine process person Length of time at Leupold & Stevens 2 years

Single Head of Household: yes____ no X

1. How do you use math in your present job?

   counting parts

2. What are your most important math needs?

   Degrees

3. How will improving your math skills improve your job performance?

   faster set up and faster counts

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

   machine set up Person

5. What is most important for you to accomplish by taking these math classes?

   —

Skillbuilders MT 2/8/91

Blueprint Math Applications

Skillbuilders MT 2/8/91

Name_ _____ Entry Date 11. . 91

Module	Pre-Test	Activities					Post Test
		1	2	3	4	5	
1. Calculator Math							
2. Blueprint Math/Symbols							
3. Decimals							
4. Fractions							
5. Comparing Fractions, Decimals, Percents							
6. Measurement/Averages/Ranges							
7. Metric Conversions							
(8) Right Triangle Formulas/Calculations							

Blueprint Math Applications

Note: These questions are for the purposes of the grant that sponsors this program. Signing your name is optional. These comments are for my records only and will not be shown to any employees of Leupold & Stevens. Thank you.

Name_____

Phone #_____

Job Title MACHINE + WELDER OP. Length of time at Leupold & Stevens 2 yrs. 10 mos

Single Head of Household: yes_____ no X

1. How do you use math in your present job?

PAPER WORK + MACHINE OPS.

2. What are your most important math needs?

TOL - ON DEGREES + A + B = C

3. How will improving your math skills improve your job performance?

ANOTHER JOB POSITION

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

MACHINE SET-UP PERSON OR CNC

5. What is most important for you to accomplish by taking these math classes?

Learning for myself.

Skillbuilders MT 2/8/91

Blueprint Math Applications Skillbuilders MT 2/8/91

Name_____ Entry Date_____/_____

Module	Pre-Test	Activities					Post Test
		1	2	3	4	5	
1. Calculator Math							
2. Blueprint Math/Symbols							
3. Decimals							
4. Fractions							
5. Comparing Fractions, Decimals, Percents							
6. Measurement/Averages/Ranges							
7. Metric Conversions							
8. Right Triangle Formulas/Calculations							

Blueprint Math Applications

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Name__ _____

Phone #. _____

Job Title TECHNICIAN Length of time at Leupold & Stevens 11yrs

Single Head of Household: yes_____ no ✓

1. How do you use math in your present job?

CALIBRATING INSTRUMENTS, MODIFYING PARTS TO PRINT

2. What are your most important math needs?

BLUEPRINT MATH

3. How will improving your math skills improve your job performance?

INCREASE SPEED IN CALCULATING

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

I HOPE SO

5. What is most important for you to accomplish by taking these math classes?

LEARN RIGHT TRIANGLE CALCULATIONS

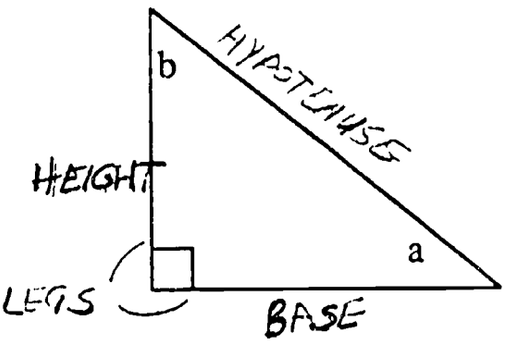
Skillbuilders MT 2/8/91

RIGHT TRIANGLE POST TEST

Name _____ Date _____

1. Define right triangle. HAS ONE 90° ANGLE

2. Label each side of the right triangle with the correct word: base, height , hypotenuse, legs.



3. In the above triangle, if angle a is 40 °, 20' , how many degrees is angle b?

49° 40'

4. Solve each of the following without using your calculator.

a) $\sqrt{36}$ = 6 b) 7^2 = 49

5. Use your calculator to solve the following.

a) $\sqrt{1225}$ = 35 b) $\sqrt{289}$ = 17

c) 14^2 = 196 d) 135^2 = 18225

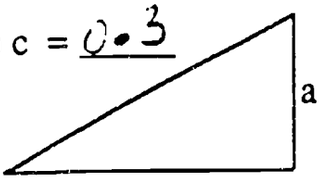
6. Where D = diagonal & S = sides. Solve for D. (D= S x 1.4142)

a) A 5" square , D = 7.071 b) A 2.5" square, D = 2.5355

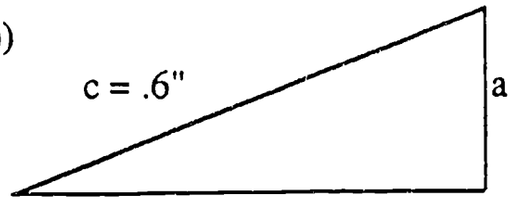
Skill Builders MT 4/2/91

7. Use the attached formula sheet to solve for the following triangles.

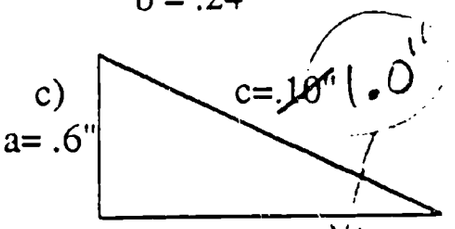
a) c = 0.3

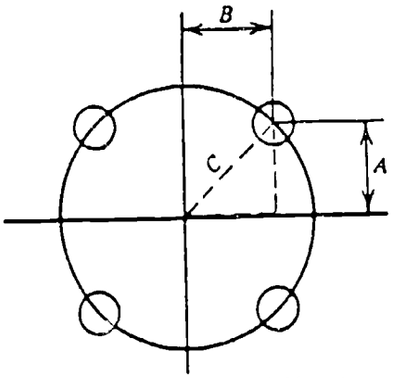


b)



c)





8. Determine the diameter of the bolt circle if A = .120", B = .160". d = 0.4

9. Use the attached formula sheet to solve for each set of values.

a) Find A. C = 5, D = 36.87°

A = 3.0

b) Find A. B = 4, D = 36.87°

A = 3.0

c) Find B. C = 5", D = 11.5°

B = 4.90'

d) Find B. A = 1", D = 11.5°

B = 4.91'

e) Find C. A = 11.4", D = 70°40'

C = 12.08'

f) Find C. B = 4, D = 70°40'

C = 12.08

10. a) Find D. A = .8", B = .15"

D= 79.38°

b) Find D. B = .15", c = .17"

D = 28.07°

Blueprint Math Applications

Note: These questions are for the purposes of the grant that sponsors this program. Signing your name is optional. These comments are for my records only and will not be shown to any employees of Leupold & Stevens. Thank you.

Name_____

Phone_____

Job Title Q.C. Supervisor Length of time at Leupold & Stevens 1-5 yrs.

Single Head of Household: yes_____ no ✓

1. How do you use math in your present job?

   Blueprint / Inspection Calculations, Dept Budgeting / Administration

2. What are your most important math needs?

   Trig. / Percentages

3. How will improving your math skills improve your job performance?

   Enhance skills – insure accuracy

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain? N/A

5. What is most important for you to accomplish by taking these math classes?

   Re-fresh old skills

Skillbuilders MT 2/8/91

Blueprint Math Applications

Note: These questions are for the purposes of the grant that sponsors this program. Signing your name is optional. These comments are for my records only and will not be shown to any employees of Leupold & Stevens. Thank you.

Name_____

Phone_____

Job Title Tech. Length of time at Leupold & Stevens 15 yrs.

Single Head of Household: yes_____ no ✓

1. How do you use math in your present job?
   Reviewing Drawings - Geometric Tolerancing

2. What are your most important math needs?
   Algebra & Trig.

3. How will improving your math skills improve your job performance?
   More Efficient

4. Will improving your math skills help your chances of moving to another job position?
   What position do you hope to obtain? NO

5. What is most important for you to accomplish by taking these math classes?
   To be more efficient with this skill.

Skillbuilders MT 2/8/91

Blueprint Math Applications

Note: These questions are for the purposes of the grant that sponsors this program. Signing your name is optional. These comments are for my records only and will not be shown to any employees of Leupold & Stevens. Thank you.

Name_____

Phone # 646-

Job Title_____ Length of time at Leupold & Stevens 12 YRS

Single Head of Household: yes X no_____

1. How do you use math in your present job?

I HAVE TO KNOW HOW ENTER the process IN THE COMPUTER

2. What are your most important math needs?

KNOWING HOW the PROCESSES WORK

3. How will improving your math skills improve your job performance?

By MAKING ME VALUABLE

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

YES LEVEL A' DRAFTPERSON

5. What is most important for you to accomplish by taking these math classes?

TO LEARN HOW TO DO Right TRIANGLE'S

Skillbuilders MT 2/8/91

Blueprint Math Applications

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Name_ _____

Phone _____

Job Title main Tube Assembler Length of time at Leupold & Stevens 15

Single Head of Household: yes_____ no ✓

1. How do you use math in your present job?

Time card + work sheets

2. What are your most important math needs?

decimals (All)

3. How will improving your math skills improve your job performance?

make me feel more confident

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

Yes

5. What is most important for you to accomplish by taking these math classes?

Decimals

Skillbuilders MT 2/8/91

Free Classes *Starting Soon*

BLUEPRINT MATH APPLICATIONS

Here's the opportunity to brush up on the math skills you've forgotten!
Here's the opportunity to improve the math you use at Leupold & Stevens!

Math applications taken from the L & S blueprint will be emphasized. Classes are scheduled for Tuesday and Thursday afternoons before or after your shift. Classes will be one on one or small group aimed for each person's specific needs. Sign up only for the modules that interest you.

Indicate below the module or modules you wish to take. You will be notified of the exact time and dates of your classes within the next two weeks.

X	*Module*	*Indicate your ability with an X below* Review	Some Help	Lots of Help
	Calculator Math Learn calculator basics			
Y	Blueprint Math / Symbols Using the L & S blueprint			X
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
	Right Triangle Formulas / Calculations			
	Other Needs _____			

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 3:30 - 5:00

Name_ Phone #_____

Return to Anthia Swanson

Reticle Dept
Dept 6040

Questions? Call Margie Taylor PH: 666-4480

Free Classes *Starting Soon*

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X	*Module*	*Indicate your ability with an X below* Review	Some Help	Lots of Help
X	Calculator Math Learn calculator basics			X
	Blueprint Math / Symbols Using the L & S blueprint			
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
	Right Triangle Formulas / Calculations			
	Other Needs _____			

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 (2:30 - 4:00) 3:00 - 4:30 3:30 - 5:00

Name_ _Phone #_

Return to Anthia Swanson Questions? Call Margie Taylor PH: 666-4480

FEB. 6

Free Classes *Starting Soon*

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X	*Module*	*Indicate your ability with an X below* Review	Some Help	Lots of Help
	Calculator Math Learn calculator basics			
	Blueprint Math / Symbols Using the L & S blueprint			
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
X	Right Triangle Formulas / Calculations			
	Other Needs _____			

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 3:30 - 5:00

Name_ _____Phone #

Return to Anthia Swanson

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X	*Module*	*Indicate your ability with an X below* Review	Some Help	Lots of Help
X	Calculator Math Learn calculator basics		X	
	Blueprint Math / Symbols Using the L & S blueprint			
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
	Measurement / Averages / Ranges Using L & S figures			
	Metric Conversions			
X	Right Triangle Formulas / Calculations			X
	Other Needs _____			

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 3:30 - 5:00

Name _____ Phone #_____

Return to Anthia Swanson Questions? Call Margie Taylor PH: 666-4480

Free Classes *Starting Soon*

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X	*Module*	*Indicate your ability with an X below* Review	Some Help	Lots of Help
X	Calculator Math Learn calculator basics		X	
X	Blueprint Math / Symbols Using the L & S blueprint		X	
	Decimals			
	Fractions			
	Comparing Fractions, Decimals, Percents			
X	Measurement / Averages / Ranges Using L & S figures		X	
	Metric Conversions			
X	Right Triangle Formulas / Calculations		X	
	Other Needs _____			

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 3:30 - 5:00

Name_____ Phone #_____

Return to Anthia Swanson Questions? Call Margie Taylor PH: 666-4480

Free Classes *Starting Soon*

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Indicate below the module or modules you wish to take. You will be notified of the exact time and dates of your classes within the next two weeks.

X	*Module*	*Indicate your ability with an X below* Review	Some Help	Lots of Help
	Calculator Math Learn calculator basics			
	Blueprint Math / Symbols Using the L & S blueprint			
X	Decimals		X	
X	Fractions		X	
X	Comparing Fractions, Decimals, Percents		X	
X	Measurement / Averages / Ranges Using L & S figures		X	
X	Metric Conversions		X	
	Right Triangle Formulas / Calculations			
	Other Needs _____			

Circle the best time for you to attend classes:

1:30 - 3:00 2:00 - 3:30 2:30 - 4:00 3:00 - 4:30 3:30 - 5:00

Name _____ Phone # _____

Return to Anthia Swanson

Questions? Call Margie Taylor PH: 666-4480

BLUEPRINT MATH APPLICATIONS

Classes in basic math applications

When: Tuesdays & Thursdays

Time: 3:30 - 5:30 (Come at 4:00 if it fits your schedule better.)

Date	Class and Goals
2/12 * 2/14	**1. Calculator Math** - Using a calculator the student will add, subtract, multiply, and divide accurately.
2/19 2/21	**2. Blueprint Math/Symbols** - The student will locate and label the main parts of the titleblock and identify and locate symbols for tolerances, radius, diameter, degree, and decimal.
2/26 2/28	**3. Decimals** - The student will read and compare decimal values, calculate decimal tolerances, and compare decimal values of five parts.
3/5 3/7	**4. Fractions** - The student will add and subtract fractions and convert them to decimals.
3/12 3/14	**5. Comparing Fractions, Decimals, and Percents** - The student will change fractions to decimals, decimals to percents, and be able to compute equal values of each.
3/19 3/21	**6. Measurement/ Averages/ Ranges** - The student will measure and compare five parts with a given mean and compute simple averages and ranges.
3/26 3/28	**7. Metric Conversions** - Using formula charts the student will convert standard measurements to metric measures.
*2/12 & 2/14 4/2 & 4/4	**8. Right Triangle Formulas / Calculations** - Using right triangle formula charts and a scientific calculator the student will calculate unknown angles or sides.

NOTE: These are basic math classes that can be started at any date.

NOTICE

Math Classes Schedule Change

The dates of some of the classes have been changed. If you had planned to attend any, please note the date changes.

Class times are still Tuesdays and Thursdays,
3:00 - 5:30 , Conference Room #4.

Date	Class & Goals
3/19 3/21 3/26 3/28	**5. Comparing Fractions, Decimals, and Percents** The student will change fractions to decimals, decimals to percents, and be able to compute equal values of each.
4/2 4/4	**6. Right Triangle Formulas / Calculations** Using right triangle formula charts and a scientific calculator, the student will calculate unknown angles or sides.
4/9 4/11	**7. Measurement/ Averages/ Ranges** The student will measure and compare five parts with a given mean and compute simple averages and ranges.
4/16 4/18	8. **Metric Conversions** Using formula charts the student will convert standard measurements to metric measures.

AGENDA

Supervisor Brainstorming

Is There a Need for a Repeat Math Class?

1. How many employees in your department need math upskilling?

2. Ideas on possible ways of rewarding students.

3. Ideas on class length and times.

MATH SKILLS SCHEDULE

May 14, 1991	Pretest Read and Compare Decimal Values
May 16, 1991	Calculate Decimal Tolerances Compare Decimal Values of Five Parts
May 21, 1991	Decimal Post Test Introduction to Fractions/Mixed Numbers
May 23, 1991	Add/Subtract Fractions Convert Fractions to Decimals
May 28, 1991	Fraction Post Test Meaning of Percent
May 30, 1991	Compare Fractions, Decimals, & Percents
June 4, 1991	Solve Percent Problems with the Calculator
June 6, 1991	Post Test

Blueprint Math Applications

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Name_____

Phone_____

Job Title Office Services Clerk Length of time at Leupold & Stevens 2yrs

Single Head of Household: yes X no____

1. How do you use math in your present job?

not at all

2. What are your most important math needs?

balancing a check book at home

3. How will improving your math skills improve your job performance?

It will make me a better "find" for other departments

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

Yes - Stevens Customer Service Purch. Assist., or Secretary

5. What is most important for you to accomplish by taking these math classes?

personal gain.

Skillbuilders MT 2/8/91

Blueprint Math Applications Skillbuilders MT 2/8/91

Name ____________ Entry Date [illegible]

Module	Pre-Test	Activities 1	2	3	4	5	Post Test
1. Calculator Math							
2. Blueprint Math/Symbols	2/20/91 16/[illegible] [redacted] Pt A Tolerances [illegible]	HJ.	HJ.	[illegible]			15/[illegible] [redacted] [illegible]/91 ([illegible] lines)
3. Decimals 17/18, 20/20, 28/32 (Comp. dec; [illegible]; Order)	2/26/91 26/4[illegible] [redacted] decimal value	[illegible]	[illegible] F5	[illegible]	F18	[illegible]	45/50 [redacted]
4. Fractions	3/7/91 22/25 = [redacted] equivalent [illegible]	22/23 [illegible]	[illegible]	9/10 Calc Conv	11/18 X		51/5[illegible] [redacted]
5. Comparing Fractions, Decimals, Percents	38/50 = [redacted] 3/26/91 % to fract dec to [illegible] Solving [illegible] whole	Comp Frac Dec %	[illegible] % Prob	Calc %	99/101 Wr. Equal	28/28 Scope Rep	[illegible]/91 20/22 = [redacted]
6. Measurement/Averages/Ranges	[redacted]						
7. Metric Conversions	[illegible]						[redacted] [illegible]
8. Right Triangle Formulas/Calculations	[redacted]						24/26 [redacted]

Blueprint Math Applications

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Name__ : _____

Phone #. _____

Job Title Office Service Clerk Length of time at Leupold & Ste ens 10 months

Single Head of Household: yes_____ no✓

1. How do you use math in your present job?

add morning cash

2. What are your most important math needs?

Bookkeeping.

3. How will improving your math skills improve your job performance?

be able to be cross trained

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

yes

5. What is most important for you to accomplish by taking these math classes?

Become familiar with my calculator and my math skills.

Skillbuilders MT 2/8/91

Blueprint Math Applications Skillbuilders MT 2/8/91

Name_____ Entry Date_____

Module	Pre-Test	Activities					Post Test
		1	2	3	4	5	
1. Calculator Math	2/12/91	✓	✓	✓	✓	✓	
2. Blueprint Math/Symbols							
3. Decimals							
4. Fractions							
5. Comparing Fractions, Decimals, Percents							
6. Measurement/Averages/Ranges							
7. Metric Conversions							
8. Right Triangle Formulas/Calculations							

Blueprint Math Applications

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Name__ _____

Phone #. _____

Job Title ASSEMBLER II Length of time at Leupold & Stevens 2 yrs

Single Head of Household: yes____ no ✓

1. How do you use math in your present job?

   ?

2. What are your most important math needs?

   ?

3. How will improving your math skills improve your job performance?

   ?

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

   [illegible]

5. What is most important for you to accomplish by taking these math classes?

   personal achievement

Skillbuilders MT 2/8/91

Blueprint Math Applications

Skillbuilders MT 2/8/91

Name_____ Entry Date 2/20/91

Module	Pre-Test	Activities					Post Test
		1	2	3	4	5	
1. Calculator Math							
	Radius						
2. Blueprint Math/Symbols	2/21 ✓						
3. Decimals							
4. Fractions							
5. Comparing Fractions, Decimals, Percents							
6. Measurement/Averages/Ranges							
7. Metric Conversions							
8. Right Triangle Formulas/Calculations							

Blueprint Math Applications

Note: These questions are for the purposes of the grant that sponsors this program. Signing your name is optional. These comments are for my records only and will not be shown to any employees of Leupold & Stevens. Thank you.

Name__ _____

Phone #_ _____

Job Title V.P Secretary Length of time at Leupold & Stevens 5 yrs

Single Head of Household: yes____ no X

1. How do you use math in your present job?

Different Kind of spreadsheets

2. What are your most important math needs?

Decimals, Fractions. Percentages

3. How will improving your math skills improve your job performance?

Help me Have more confident in myself

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

It will give me more Flexibility

5. What is most important for you to accomplish by taking these math classes?

Figure out some problems in my spreadsheets

Skillbuilders MT 2/8/91

Blueprint Math Applications

Skillbuilders MT 2/8/91

Name _____ Entry Date _____

Module	Pre-Test	Activities					Post Test
		1	2	3	4	5	
1. Calculator Math							
2. Blueprint Math/Symbols							
3. Decimals							
4. Fractions							
5. Comparing Fractions, Decimals, Percents							
6. Measurement/Averages/Ranges							
7. Metric Conversions							
8. Right Triangle Formulas/Calculations							

Blueprint Math Applications

Note: These questions are for the purposes of the grant that sponsors this program. Signing your name is optional. These comments are for my records only and will not be shown to any employees of Leupold & Stevens. Thank you.

Name. _____

Phone _____

Job Title Receptionist/Operator Length of time at Leupold & Stevens 1 year 11 months

Single Head of Household: yes X no____

1. How do you use math in your present job?

adding morning cash

2. What are your most important math needs?

bookkeeping

3. How will improving your math skills improve your job performance?

faster service

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

education is always helpful

5. What is most important for you to accomplish by taking these math classes?

satisfy curiosity

Skillbuilders MT 2/8/91

Blueprint Math Applications Skillbuilders MT 2/8/91

Name _____ Entry Date 2/12/91

Module	Pre-Test	Activities					Post Test
		1	2	3	4	5	
1. Calculator Math	2/12/91	✓	✓	✓	✓	✓	
2. Blueprint Math/Symbols							
3. Decimals							
4. Fractions							
5. Comparing Fractions, Decimals, Percents							
6. Measurement/Averages/Ranges							
7. Metric Conversions							
8. Right Triangle Formulas/Calculations							

Blueprint Math Applications

Note: These questions are for the purposes of the grant that sponsors this program. Signing your name is optional. These comments are for my records only and will not be shown to any employees of Leupold & Stevens. Thank you.

Name__

Phone #_

Job Title Parts Elsher Length of time at Leupold & Stevens 11 [illegible]

Single Head of Household: yes_____ no X

1. How do you use math in your present job?

On blueprint & measuring ([illegible] caliper)

2. What are your most important math needs?

all

3. How will improving your math skills improve your job performance?

measure more accurately

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

would like to be set up person

5. What is most important for you to accomplish by taking these math classes?

be better employee

Skillbuilders MT 2/8/91

Blueprint Math Applications Skillbuilders MT 2/8/91

Name_____ Entry Date 2/12/91

Module	Pre-Test	Activities					Post Test
		1	2	3	4	5	
1. Calculator Math	2/12/91 [redacted]	✓	✓	✓	✓	✓	[redacted]
2. Blueprint Math/Symbols	2/12/91 23/25 [redacted]						17/20 [redacted]
3. Decimals	[redacted]	22/22 WR Dec	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
4. Fractions		✓					[redacted]
5. Comparing Fractions, Decimals, Percents							[redacted]
6. Measurement/Averages/Ranges							
7. Metric Conversions							
8. Right Triangle Formulas/Calculations							

Blueprint Math Applications

Note: These questions are for the purposes of the grant that sponsors this program. Signing your name is optional. These comments are for my records only and will not be shown to any employees of Leupold & Stevens. Thank you.

Name__ _____

Phone # _____

Job Title MACHINEST Length of time at Leupold & Stevens 13 yrs

Single Head of Household: yes____ no ✓

1. How do you use math in your present job?

ADD, SUBTRACT, DIVIDE, USING DECIMALS

2. What are your most important math needs?

DECIMALS, FRACTIONS.

3. How will improving your math skills improve your job performance?

It will help reading BLUEPRINTS

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

5. What is most important for you to accomplish by taking these math classes?

REFRESH, AND USE it more

Skillbuilders MT 2/8/91

Blueprint Math Applications Skillbuilders MT 2/8/91

Name_ ____________ Entry Date [illegible]/91

Module	Pre-Test	Activities					Post Test
		1	2	3	4	5	
1. Calculator Math							
✱ 2. Blueprint Math/Symbols	2/20/91 17/25 toler[redacted]	9/10	HO ✓	HO ✓			2/28/91 [redacted]
✱ 3. Decimals	2/28/91 [illegible] [redacted]	[illegible]/18 [illegible]	[illegible]/[illegible]2 Writ[illegible] Order	2[illegible]/20 [illegible]	15/15 Round[illegible]		22/30 [redacted] See note
✱ 4. Fractions	3/19/91 [illegible]/25 [redacted] LCD, Comparing subtracting	21/22 [illegible]	Compa[illegible]	18/18 Subtracting			38/40 [redacted]
5. Comparing Fractions, Decimals, Percents							
6. Measurement/Averages/Ranges							
7. Metric Conversions							
8. Right Triangle Formulas/Calculations							

Blueprint Math Applications

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Name__ _____

Phone #_ _____

Job Title MECH. ASSEMBLER Length of time at Leupold & Stevens 4 MONTHS

Single Head of Household: yes_X__ no_____

1. How do you use math in your present job?

Keeping track of production quantities to meet schedule

2. What are your most important math needs?

General review of most everything involving blueprints

3. How will improving your math skills improve your job performance?

Better understanding of B/p to make evaluations more efficiently

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

Yes, possibly quality control or supervision in manufacturing

5. What is most important for you to accomplish by taking these math classes?

To update my training to my current job

Skillbuilders MT 2/8/91

Blueprint Math Applications

Skillbuilders MT 2/8/91

Name_____ Entry Date_____

Module	Pre-Test	Activities					Post Test
		1	2	3	4	5	
1. Calculator Math							
* 2. Blueprint Math/Symbols	2/19/91 23/25						—
	Review						
3. Decimals							
4. Fractions							
5. Comparing Fractions, Decimals, Percents							
6. Measurement/Averages/Ranges							
7. Metric Conversions							
8. Right Triangle Formulas/Calculations							

Blueprint Math Applications

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Name_____

Phone_____

Job Title Drill Press Oper Length of time at Leupold & Stevens 11 1/2 yr

Single Head of Household: yes X no____

1. How do you use math in your present job? to figure out where to drill holes on hydro parts

2. What are your most important math needs? 1 — 6 -

3. How will improving your math skills improve your job performance?
By understanding blue prints

4. Will improving your math skills help your chances of moving to another job position?
What position do you hope to obtain? A operator

5. What is most important for you to accomplish by taking these math classes?
to become an A operator

Skillbuilders MT 2/8/91

Blueprint Math Applications Skillbuilders MT 2/8/91

Name _____ Entry Date _____

Module	Pre-Test	Activities					Post Test
		1	2	3	4	5	
1. Calculator Math	[redacted] /50	✓	✓	✓	✓	✓	[redacted]
	[redacted]						
2. Blueprint Math/Symbols	[redacted] /25						[redacted] /20
3. Decimals	2/26/91 [redacted] /43	[redacted] /12 Writ. Dec.	[redacted] /20 P19	[redacted] /22 P18	12/15 Count Dec		[redacted]
4. Fractions 23/29 Wr. dec. Frac.	[redacted]	[redacted] /14	[redacted] /14	4/4	16/22	6/16	33/37 = [redacted]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
5. Comparing Fractions, Decimals, Percents							
6. Measurement/Averages/Ranges							
7. Metric Conversions							
8. Right Triangle Formulas/Calculations [redacted]		[illegible]					
		[illegible]					

Blueprint Math Applications

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Name _____

Phone _____

Job Title Electronics Assembler Length of time at Leupold & Stevens 2 yrs. [illegible]

Single Head of Household: yes X no ____

1. How do you use math in your present job? Calibration

2. What are your most important math needs? Basic Calculator at this time.

3. How will improving your math skills improve your job performance?
I would be able to solve problems myself.

4. Will improving your math skills help your chances of moving to another job position?
What position do you hope to obtain? not at this time.

5. What is most important for you to accomplish by taking these math classes?
Just by knowing the calculator.

Skillbuilders MT 2/8/91

Blueprint Math Applications Skillbuilders MT 2/8/91

Name ____________ Entry Date 2/14/91

Module	Pre-Test	Activities					Post Test
		1	2	3	4	5	
1. Calculator Math	Calc. Practice 2/14/91 [redacted]	2/14	✓	✓	✓	✓	[redacted]
2. Blueprint Math/Symbols							
3. Decimals [illegible]	2/26/91 20/45 [redacted] decimal values	[illegible]/12 [illegible]	25/26 [illegible] 25/26	26/23 [illegible] [illegible]/17	17/18 comp dec	32/32 Writ dec	[illegible] [redacted] [illegible] [redacted] [illegible]
4. ~~Fractions~~ Graphing	[redacted]	2/4 Reading Graph	2/4 Using Formula	Applying Formula			[redacted]
5. Comparing Fractions, Decimals, Percents							
6. Measurement/Averages/Ranges							
7. Metric Conversions							
8. Right Triangle Formulas/Calculations							

Blueprint Math Applications

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Name_____

Phone_____

Job Title machine process person Length of time at Leupold & Stevens 2 years

Single Head of Household: yes_____ no X

1. How do you use math in your present job?

   counting parts

2. What are your most important math needs?

   Degrees

3. How will improving your math skills improve your job performance?

   faster set up and faster counts

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

   machine set up Person

5. Wnat is most important for you to accomplish by taking these math classes?

   —

Skillbuilders MT 2/8/91

Blueprint Math Applications

Skillbuilders MT 2/8/91

Name_____ Entry Date 1 . 91

Module	Pre-Test	Activities					Post Test
		1	2	3	4	5	
1. Calculator Math							
2. Blueprint Math/Symbols							
3. Decimals							
4. Fractions							
5. Comparing Fractions, Decimals, Percents							
6. Measurement/Averages/Ranges							
7. Metric Conversions							
8. Right Triangle Formulas/Calculations							[redacted]

Blueprint Math Applications

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Name_ _____

Phone # _____

Job Title MACHINE + WELDER OP. Length of time at Leupold & Stevens 2 yrs. 10 mo

Single Head of Household: yes_____ no X

1. How do you use math in your present job?

PAPER WORK + MACHINE OPS.

2. What are your most important math needs?

+ or - on Degrees + A + B = C

3. How will improving your math skills improve your job performance?

ANOTHER JOB POSITION

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

MACHINE SET-UP PERSON OR CNC

5. What is most important for you to accomplish by taking these math classes?

learning for myself.

Skillbuilders MT 2/8/91

Blueprint Math Applications

Skillbuilders MT 2/8/91

Name_____ Entry Date_____/_____

Module	Pre-Test	Activities					Post Test
		1	2	3	4	5	
1. Calculator Math							
2. Blueprint Math/Symbols							
3. Decimals							
4. Fractions							
5. Comparing Fractions, Decimals, Percents							
6. Measurement/Averages/Ranges							
7. Metric Conversions							
8.) Right Triangle Formulas/Calculations							

Blueprint Math Applications

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Name_____ _____

Phone #___ _____

Job Title Machinist Length of time at Leupold & Stevens 3 YR

Single Head of Household: yes X no_____

1. How do you use math in your present job?

blue print Reading, Countulating, lengths and demeations

2. What are your most important math needs?

To insure dementions are correct

3. How will improving your math skills improve your job performance?

to insure that im putting out better parts

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

Yes Lead person

5. What is most important for you to accomplish by taking these math classes?

make Sure I put out Quality parts and Insuring others do

Skillbuilders MT 2/8/91

Blueprint Math Applications Skillbuilders MT 2/8/91

Name___ ____ Entry Date 4-2-91

Module	Pre-Test	Activities					Post Test
		1	2	3	4	5	
1. Calculator Math							
2. Blueprint Math/Symbols							
3. Decimals							
4. Fractions							
5. Comparing Fractions, Decimals, Percents							
6. Measurement/Averages/Ranges							
7. Metric Conversions							
8. Right Triangle Formulas/Calculations	4-2-91						4-4-91 29/30 = [redacted]
		Worked activities in together class					

Blueprint Math Applications

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Name__ _____

Phone #. _____

Job Title TECHNICIAN Length of time at Leupold & Stevens 11yrs

Single Head of Household: yes____ no ✓

1. How do you use math in your present job?

CALIBRATING INSTRUMENTS, MODIFYING PARTS TO FIT

2. What are your most important math needs?

BLUEPRINT MATH

3. How will improving your math skills improve your job performance?

INCREASE SPEED IN CALCULATING

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

I HOPE SO

5. What is most important for you to accomplish by taking these math classes?

LEARN RIGHT TRIANGLE CALCULATIONS

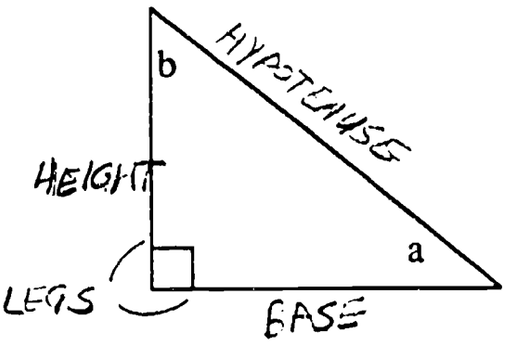
Skillbuilders MT 2/8/91

RIGHT TRIANGLE POST TEST

Name _____ Date _____

1. Define right triangle. HAS ONE 90° ANGLE

2. Label each side of the right triangle with the correct word: base, height , hypotenuse, legs.



3. In the above triangle, if angle a is 40 °, 20' , how many degrees is angle b?

49°40'

4. Solve each of the following without using your calculator.

a) $\sqrt{36}$ = 6 b) 7^2 = 49

5. Use your calculator to solve the following.

a) $\sqrt{1225}$ = 35 b) $\sqrt{289}$ = 17

c) 14^2 = 196 d) 135^2 = 18225

6. Where D = diagonal & S = sides. Solve for D. (D= S x 1.4142)

a) A 5" square , D = 7.071 b) A 2.5" square, D = 3.5355

Skill Builders MT 4/2/91

7. Use the attached formula sheet to solve for the following triangles.

a) c = 0.3

a = .18"

b = .24"

b)

c = .6"

a = .397

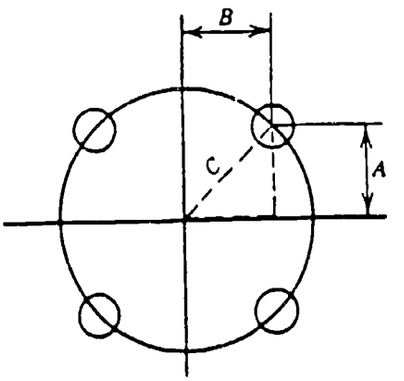
b = .45"

c)

a= .6"

c= ~~.10~~ 1.0"

b= 0.8



8. Determine the diameter of the bolt circle if A = .120", B = .160". d = 0.4

9. Use the attached formula sheet to solve for each set of values.

a) Find A. C = 5, D = 36.87°

A = 3.0

b) Find A. B = 4, D = 36.87°

A = 3.0

c) Find B. C = 5", D = 11.5°

B = 4.90'

d) Find B. A = 1", D = 11.5°

B = 4.91'

e) Find C. A = 11.4", D = 70°40'

C = 12.08'

f) Find C. B = 4, D = 70°40'

C = 12.08

10. a) Find D. A = .8", B = .15"

D= 79.38°

b) Find D. B = .15", c = .17"

D = 28.07°

Blueprint Math Applications

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Name_____

Phone_____

Job Title Q.C. Supervisor Length of time at Leupold & Stevens 1-5 yrs.

Single Head of Household: yes_____ no ✓

1. How do you use math in your present job?

Blueprint / Inspection Calculations, Dept Budgeting / Administration

2. What are your most important math needs?

Trig. / Percentage

3. How will improving your math skills improve your job performance?

Enhance skills – insure accuracy

4. Will improving your math skills help your chances of moving to another job position?
What position do you hope to obtain? N/A

5. What is most important for you to accomplish by taking these math classes?

Re-fresh old skills

Skillbuilders MT 2/8/91

Blueprint Math Applications

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Name_____

Phone_____

Job Title Tech. Length of time at Leupold & Stevens 15 yrs.

Single Head of Household: yes_____ no ✓

1. How do you use math in your present job?
   Reviewing Drawings - Geometric Tolerancing

2. What are your most important math needs?
   Algebra & Trig.

3. How will improving your math skills improve your job performance?
   More Efficient

4. Will improving your math skills help your chances of moving to another job position?
   What position do you hope to obtain? NO

5. What is most important for you to accomplish by taking these math classes?
   To be more efficient with this skill.

Skillbuilders MT 2/8/91

Blueprint Math Applications

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Name_____

Phone # 646-

Job Title_____ Length of time at Leupold & Stevens 12 YRS

Single Head of Household: yes X no____

1. How do you use math in your present job?

I HAVE to KNOW HOW ENTER the PROCESS IN THE COMPUTER

2. What are your most important math needs?

KNOWING HOW the PROCESSES WORK

3. How will improving your math skills improve your job performance?

By MAKING ME VALUABLE

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

YES LEVEL A' DRAFT PERSON

5. What is most important for you to accomplish by taking these math classes?

TO LEARN HOW to DO Right TRIANGLE'S

Skillbuilders MT 2/8/91

Blueprint Math Applications

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Name_ _____

Phone _____

Job Title main Tube Assembler Length of time at Leupold & Stevens 15

Single Head of Household: yes_____ no ✓

1. How do you use math in your present job?

Time card + work sheets

2. What are your most important math needs?

decimals (All)

3. How will improving your math skills improve your job performance?

make me feel more confident

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

Yes

5. What is most important for you to accomplish by taking these math classes?

Decimals

Skillbuilders MT 2/8/91

MATH SKILLS RECORD SHEET

NAME_____ ENTRY DATE_____

		SCORE
May 14, 1991	Pretest	22/32 [redacted]
	Read and Compare Decimal Values	
May 16, 1991	Calculate Decimal Tolerances	
	Compare Decimal Values of Five Parts	
May 21, 1991	Decimal Post Test	44/45
	Introduction to Fractions/Mixed Numbers	
May 23, 1991	Add/Subtract Fractions	
	Convert Fractions to Decimals	
May 28, 1991	Fraction Post Test	40/43
	Meaning of Percent	
May 30, 1991	Compare Fractions, Decimals, & Percents	
June 4, 1991	Solve Percent Problems	
June 6, 1991	Post Test for All Components	97% [redacted] 13% =

Skill Builders MT 5/14/91

Blueprint Math Applications

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Name__ _____

Phone #_ _____

Job Title ORDer Asc. H Length of time at Leupold & Stevens 5yr

Single Head of Household: yes X no____.

1. How do you use math in your present job?

for cycle counting

2. What are your most important math needs?

all

3. How will improving your math skills improve your job performance?

It will get me closer to Become a machinest

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

yes, machine operator

5. What is most important for you to accomplish by taking these math classes?

to pass

Skillbuilders MT 2/8/91

Dropped

MATH SKILLS RECORD SHEET

NAME _____ ENTRY DATE _____

		SCORE
May 14, 1991	Pretest	[redacted]
	Read and Compare Decimal Values	
May 16, 1991	Calculate Decimal Tolerances	
	Compare Decimal Values of Five Parts	
May 21, 19[illegible]	Decimal Post Test	[illegible]
	Introduction to Fractions/Mixed Numbers	✓
May 23, 1991	Add/Subtract Fractions	
	Convert Fractions to Decimals	
May 28, 1991	Fraction Post Test	
	Meaning of Percent	
May 30, 1991	Compare Fractions, Decimals, & Percents	
June 4, 1991	Solve Percent Problems	
June 6, 1991	Post Test for All Components	

Blueprint Math Applications

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Name___

Phone #_

Job Title machine operator Length of time at Leupold & Stevens 3 years

Single Head of Household: yes X no____

1. How do you use math in your present job?

Add + Subtract dimensions

2. What are your most important math needs?

Add + Subtract

3. How will improving your math skills improve your job performance?

Get things done quicker

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

maybe - A operator

5. What is most important for you to accomplish by taking these math classes?

To refresh my memory

Skillbuilders MT 2/8/91

MATH SKILLS RECORD SHEET

NAME_____ ENTRY DATE 5-14-91

		SCORE
May 14, 1991	Pretest	17/32
	Read and Compare Decimal Values	
May 16, 1991	Calculate Decimal Tolerances	
	Compare. Decimal Values of Five Parts	
May 21, 1991	Decimal Post Test	45/45
	Introduction to Fractions/Mixed Numbers	
May 23, 1991	Add/Subtract Fractions	
	Convert Fractions to Decimals	
May 28, 1991	Fraction Post Test	
	Meaning of Percent	
May 30, 1991	Compare Fractions, Decimals, & Percents	
June 4, 1991	Solve Percent Problems	
June 6, 1991	Post Test for All Components	[redacted]

Skill Builders MT 5/14/91

Blueprint Math Applications

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Name_____

Phone #_____

Job Title H- Length of time at Leupold & Stevens 11 yrs

Single Head of Household: yes X no____

1. How do you use math in your present job?

for cycle cts. finding cost of parts for adjustment.

2. What are your most important math needs?

Decimal

3. How will improving your math skills improve your job performance?

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

5. What is most important for you to accomplish by taking these math classes?

Skillbuilders MT 2/8/91

MATH SKILLS RECORD SHEET

NAME_ _____ ENTRY DATE_____

		SCORE
May 14, 1991	Pretest	[redacted]
	Read and Compare Decimal Values	✓
May 16, 1991	Calculate Decimal Tolerances	✓
	Compare Decimal Values of Five Parts	
May 21, 1991	Decimal Post Test	22/2
	Introduction to Fractions/Mixed Numbers	✓
May 23, 1991	Add/Subtract Fractions	
	Convert Fractions to Decimals	
May 28, 1991	Fraction Post Test	[redacted]
	Meaning of Percent	
May 30, 1991	Compare Fractions, Decimals, & Percents	
June 4, 1991	Solve Percent Problems	
June 6, 1991	Post Test for All Components	[redacted]

Skill Builders MT 5/14/91

Blueprint Math Applications

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Name__ _____

Phone #_ _____

Job Title Machine set-up Length of time at Leupold & Stevens 2 weeks

Single Head of Household: yes____ no ✓

1. How do you use math in your present job?

2. What are your most important math needs?

   Refresher

3. How will improving your math skills improve your job performance?

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

5. What is most important for you to accomplish by taking these math classes?

   To be proficient with percentages

Skillbuilders MT 2/8/91

MATH SKILLS RECORD SHEET

Dropped out

NAME_____ ENTRY DATE_____

		SCORE
May 14, 1991	Pretest	
	Read and Compare Decimal Values	
May 15, 1991	Calculate Decimal Tolerances	
	Compare Decimal Values of Five Parts	
May 21, 1991	Decimal Post Test	
	Introduction to Fractions/Mixed Numbers	
May 23, 1991	Add/Subtract Fractions	
	Convert Fractions to Decimals	
May 28, 1991	Fraction Post Test	
	Meaning of Percent	
May 30, 1991	Compare Fractions, Decimals, & Percents	
June 4, 1991	Solve Percent Problems	
June 6, 1991	Post Test for All Components	82 + 13 EC. [redacted]

Skill Builders MT 5/14/91

Blueprint Math Applications

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Name__ _____

Phone #_ _____

Job Title order filler Length of time at Leupold & Stevens 2yrs. 5mos.

Single Head of Household: yes____ no X

1. How do you use math in your present job?

I pull a lot of orders so I am constantly using math

2. What are your most important math needs?

addition, subtraction, multiplication and division

3. How will improving your math skills improve your job performance?

It will make my orders more accurate

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

don't know

5. What is most important for you to accomplish by taking these math classes?

to brush up on it

Skillbuilders MT 2/8/91

MATH SKILLS RECORD SHEET

NAME_____ ENTRY DATE 5/4/91

		SCORE
May 14, 1991	Pretest	29/32
	Read and Compare Decimal Values	
May 16, 1991	Calculate Decimal Tolerances	
	Compare. Decimal Values of Five Parts	
May 21, 1991	Decimal Post Test	36/45
	Introduction to Fractions/Mixed Numbers	
May 23, 1991	Add/Subtract Fractions	
	Convert Fractions to Decimals	
May 28, 1991	Fraction Post Test	40/42
	Meaning of Percent	
May 30, 1991	Compare Fractions, Decimals, & Percents	
June 4, 1991	Solve Percent Problems	
June 6, 1991	Post Test for All Components	92% + 13%

Skill Builders MT 5/14/91

Blueprint Math Applications

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Name_____

Phone #_____

Job Title Maintuba Assembler Length of time at Leupold & Stevens 3yr 10mo.

Single Head of Household: yes____ no X

1. How do you use math in your present job?

   Time card & work sheet

2. What are your most important math needs?

   ALL.

3. How will improving your math skills improve your job performance?

   make myself feel like I know something.

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

   yes

5. What is most important for you to accomplish by taking these math classes?

   ALL

Skillbuilders MT 2/8/91

MATH SKILLS RECORD SHEET

Dropped

NAME_ _____ ENTRY DATE_____

		SCORE
May 14, 1991	Pretest	10/32
	Read and Compare Decimal Values	
May 16, 1991	Calculate Decimal Tolerances	
	Compare. Decimal Values of Five Parts	
May 21, 1991	Decimal Post Test	31-45
	Introduction to Fractions/Mixed Numbers	
May 23, 1991	Add/Subtract Fractions	
	Convert Fractions to Decimals	
May 28, 1991	Fraction Post Test	
	Meaning of Percent	
May 30, 1991	Compare Fractions, Decimals, & Percents	
June 4, 1991	Solve Percent Problems	
June 6, 1991	Post Test for All Components	

Blueprint Math Applications

Note: These questions are for the purposes of the grant that sponsors this program. Signing your name is optional. These comments are for my records only and will not be shown to any employees of Leupold & Stevens. Thank you.

Name__ _____

Phone # _____

Job Title_____ Length of time at Leupold & Stevens__18yr__

Single Head of Household: yes_X_ no____

1. How do you use math in your present job?

2. What are your most important math needs?

3. How will improving your math skills improve your job performance?

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

5. What is most important for you to accomplish by taking these math classes?

Skillbuilders MT 2/8/91

Didn't Complete

MATH SKILLS RECORD SHEET

NAME_____ ENTRY DATE_____

		SCORE
May 14, 1991	Pretest	14/32
	Read and Compare Decimal Values	✓
May 16, 1991	Calculate Decimal Tolerances	✓
	Compare. Decimal Values of Five Parts	✓
May 21, 1991	Decimal Post Test	15/25
	Introduction to Fractions/Mixed Numbers	
May 23, 1991	Add/Subtract Fractions	
	Convert Fractions to Decimals	
May 28, 1991	Fraction Post Test	
	Meaning of Percent	
May 30, 1991	Compare Fractions, Decimals, & Percents	
June 4, 1991	Solve Percent Problems	
June 6, 1991	Post Test for All Components	

LEARNER
&
SUPERVISOR
EVALUATIONS

Winter Evaluations

Spring Evaluations

Leupold & Stevens, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1.	This class has been					
very interesting	5	4	3	2	1	very boring
2.	This class was					
very hard	5	4	3	2	1	very easy
3.	On the job this class helped me					
to do more accurate work	5	4	3	2	1	not at all
4.	The instructor was					
interesting	5	4	3	2	1	boring
5.	I understood what I was supposed to learn					
most of the time	5	4	3	2	1	rarely
6.	The materials were directly related to the objective					
always	5	4	3	2	1	rarely
7.	Sufficient practice exercises were included					
too many	5	4	3	2	1	too few
8.	I received sufficient feedback on my practice exercises					
always	5	4	3	2	1	rarely
9.	The tests measured my performance on the objectives					
always	5	4	3	2	1	never

Skill Builders MT Rev 6/13/91

10. I received sufficient feedback on my test results.

always	5	4	3	2	1	never

11. After being in this class, I would

like to have more training like this	5	4	3	2	1	no moretraining like this

13. What can you do now that you could not do before taking this class?

14. Has this course helped you meet or work toward any of your personal goals? If so, how?

15. Would you recommend this course to a co-worker? Why or why not?

16. What did you like best about this course? Least?

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY JUNE 20, 1991.

THANK YOU FOR YOUR INPUT!

Leupold & Stevens, Inc.

Math Skills Class

SUPERVISOR EVALUATION

Participant_____ Job Title_____

What effect did the participation in the math class have on your employee? Circle the number that applies for each item.

1.	The trainee indicated that the course was well designed and helpful.					
Very well done	5	4	3	2	1	poor
2.	He/she mastered the material he/she was taught.					
definitely	5	4	3	2	1	not at all
3.	He/she has greater cooperation and/or problem solving ability since the class.					
Yes	5	4	3	2	1	I see no difference
4.	The trainee applies the skills learned in class on the job.					
Yes	5	4	3	2	1	I see no difference
5.	How do you think the employee will be able to handle new procedures introduced into your department?					
Much better	5	4	3	2	1	Much worse

6. What was the most positive effect of this course on the employee?

_____

_____

_____

_____

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY JUNE 20, 1991.

Skill Builders MT rev. 6/13/91

WINTER EVALUATIONS

Leupold & Stevens, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1. This class has been						
very interesting	5	(4)	3	2	1	very boring
2. This class was						
very hard	5	4	(3)	2	1	very easy
3. On the job this class helped me						
to do more accurate work	(5)	4	3	2	1	not at all
4. The instructor was						
interesting	5	(4)	3	2	1	boring
5. I understood what I was supposed to learn						
most of the time	5	4	(3)	2	1	rarely
6. The materials were directly related to the objective						
always	5	(4)	3	2	1	rarely
7. Sufficient practice exercises were included						
too many	5	(4)	3	2	1	too few
8. I received sufficient feedback on my practice exercises						
always	(5)	4	3	2	1	rarely
9. The tests measured my performance on the objectives						
always	5	(4)	3	2	1	never

Skill Builders MT 5/2/91

10. I received sufficient feedback on my test results.

always	(5)	4	3	2	1	never

11. After being in this class, I would

like to have more training like this	5	(4)	3	2	1	no more training like this

12. This class has been

very useful to me on the job	5	(4)	3	2	1	totally useless to me on the job

13. What can you do now that you could not do before taking this class?

use the calculator, fractions, decimals

14. Has this course helped you meet or work toward any of your personal goals? If so, how?

I understand math more now

15. Would you recommend this course to a co-worker? Why or why not?

yes. Its a good class, easier to learn

16. What did you like best about this course?

it was a one on one class.

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

THANK YOU FOR YOUR INPUT!

Leupold & Stevens, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1. This class has been						
very interesting	5	4	3	2	1	very boring
2. This class was						
very hard	5	4	3	2	1	very easy
3. On the job this class helped me						
to do more accurate work	5	4	3	2	1	not at all
4. The instructor was						
interesting	5	4	3	2	1	boring
5. I understood what I was supposed to learn						
most of the time	5	4	3	2	1	rarely
6. The materials were directly related to the objective						
always	5	4	3	2	1	rarely
7. Sufficient practice exercises were included						
too many	5	4	3	2	1	too few
8. I received sufficient feedback on my practice exercises						
always	5	4	3	2	1	rarely
9. The tests measured my performance on the objectives						
always	5	4	3	2	1	never

Skill Builders MT 5/2/91

10. I received sufficient feedback on my test results.						
always	5	4	3	2	1	never
11. After being in this class, I would						
like to have more training like this	5	4	3	2	1	no more training like this
12. This class has been						
very useful to me on the job	5	4	3	2	1	totally useless to me on the job

13. What can you do now that you could not do before taking this class?

14. Has this course helped you meet or work toward any of your personal goals? If so, how?

15. Would you recommend this course to a co-worker? Why or why not?

16. What did you like best about this course?

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

THANK YOU FOR YOUR INPUT!

Leupold & Stevens, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1. This class has been						
very interesting	(5)	4	3	2	1	very boring
2. This class was						
very hard	5	4	(3)	2	1	very easy
3. On the job this class helped me						
to do more accurate work	5	(4)	3	2	1	not at all
4. The instructor was						
interesting	(5)	4	3	2	1	boring
5. I understood what I was supposed to learn						
most of the time	(5)	4	3	2	1	rarely
6. The materials were directly related to the objective						
always	(5)	4	3	2	1	rarely
7. Sufficient practice exercises were included						
too many	5	4	(3)	2	1	too few
8. I received sufficient feedback on my practice exercises						
always	(5)	4	3	2	1	rarely
9. The tests measured my performance on the objectives						
always	(5)	4	3	2	1	never

Skill Builders MT 5/2/91

10. I received sufficient feedback on my test results.

always	(5)	4	3	2	1	never

11. After being in this class, I would

like to have more training like this	(5)	4	3	2	1	no moretraining like this

12. This class has been

very useful to me on the job	(5)	4	3	2	1	totally useless to me on the job

13. What can you do now that you could not do before taking this class?

Can approach fractions & decimals with better knowledge on converting, etc.

14. Has this course helped you meet or work toward any of your personal goals? If so, how?

Gave me a real sense of accomplishment and confidence.

15. Would you recommend this course to a co-worker? Why or why not?

Yes and I have seen article in "Team Talk"

16. What did you like best about this course?

It was geared to my level and ability.

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

THANK YOU FOR YOUR INPUT!

Leupold & Stevens, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1. This class has been						
very interesting	(5)	4	3	2	1	very boring
2. This class was						
very hard	5	4	(3)	2	1	very easy
3. On the job this class helped me						
to do more accurate work	5	4	(3)	2	1	not at all
4. The instructor was						
interesting	(5)	4	3	2	1	boring
5. I understood what I was supposed to learn						
most of the time	5	4	(3)	2	1	rarely
6. The materials were directly related to the objective						
always	(5)	4	3	2	1	rarely
7. Sufficient practice exercises were included						
too many	5	(4)	3	2	1	too few
8. I received sufficient feedback on my practice exercises						
always	(5)	4	3	2	1	rarely
9. The tests measured my performance on the objectives						
always	5	(4)	3	2	1	never

Skill Builders MT 5/2/91

10. I received sufficient feedback on my test results.

always	5	4	3	2	1	never

11. After being in this class, I would

like to have more training like this	5	4	3	2	1	no moretraining like this

12. This class has been

very useful to me on the job	5	4	3	2	1	totally useless to me on the job

13. What can you do now that you could not do before taking this class?

I learned to use the Right formual for Each situasion

14. Has this course helped you meet or work toward any of your personal goals? If so, how?

yes, it helped me do my Job better

15. Would you recommend this course to a co-worker? Why or why not?

Yes. The material was geared for the work that you use here at LE's

16. What did you like best about this course?

The Teacher made so easy to Learn and understand the Course

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

THANK YOU FOR YOUR INPUT!

Leupold & Stevens, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1. This class has been						
very interesting	(5)	4	3	2	1	very boring
2. This class was						
very hard	5	4	(3)	2	1	very easy
3. On the job this class helped me						
to do more accurate work	5	4	3	2	(1)	not at all
4. The instructor was						
interesting	(5)	4	3	2	1	boring
5. I understood what I was supposed to learn						
most of the time	5	(4)	3	2	1	rarely
6. The materials were directly related to the objective						
always	(5)	4	3	2	1	rarely
7. Sufficient practice exercises were included						
too many	(5)	4	3	2	1	too few
8. I received sufficient feedback on my practice exercises						
always	(5)	4	3	2	1	rarely
9. The tests measured my performance on the objectives						
always	(5)	4	3	2	1	never

Skill Builders MT 5/2/91

10. I received sufficient feedback on my test results.

always	5	4	(3)	2	1	never

11. After being in this class, I would

like to have more training like this	(5)	4	3	2	1	no moretraining like this

12. This class has been

very useful to me on the job	5	4	3	2	(1)	totally useless to me on the job

13. What can you do now that you could not do before taking this class?

14. Has this course helped you meet or work toward any of your personal goals? If so, how?

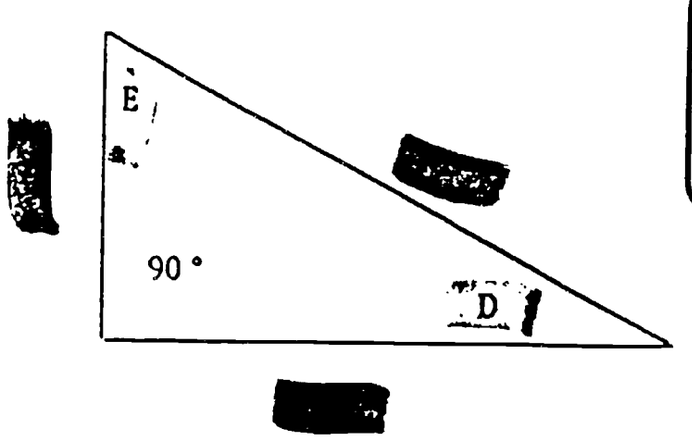
15. Would you recommend this course to a co-worker? Why or why not?

16. What did you like best about this course?

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

THANK YOU FOR YOUR INPUT!

RIGHT TRIANGLES



SAMPLE:
A = 3
B = 4
C = 5
D = 36.87 °
E = 53.13 °

TO FIND	KNOWN PARTS	FORMULA	CALCULATOR APPLICATION (: = "ENTER") Texas Instrument - 34
A	C & D	$C \times \text{SIN } D = A$	: C : x : D : SIN : =
A	B & D	$B \times \text{TAN } D = A$	: B : x : D : TAN : =
A	C & B	$\sqrt{C^2 - B^2} = A$	: C : X^2 : — : B : X^2 : = : 2nd : $\sqrt{X}$
B	C & D	$C \times \text{COS } D = B$	: C : x : D : COS : =
B	A & D	$\frac{A}{\text{TAN } D} = B$	: A : ÷ : D : TAN : =
B	C & A	$\sqrt{C^2 - A^2} = B$	: C : X^2 : — : A : X^2 : = : 2nd : $\sqrt{X}$
C	A & D	$\frac{A}{\text{SIN } D} = C$	: A : ÷ : D : SIN : =
C	B & D	$\frac{B}{\text{COS } D} = C$	: B : ÷ : D : COS : =
C	A & B	$\sqrt{A^2 + B^2} = C$	: A : X^2 : + : B : X^2 : = : 2nd : $\sqrt{X}$
D	A & C	$\frac{A}{C} = \text{SIN } D$	: A : ÷ : C : = : 2nd : SIN
D	B & C	$\frac{B}{C} = \text{COS } D$	: B : ÷ : C : = : 2nd : COS
D	A & B	$\frac{A}{B} = \text{TAN } D$	: A : ÷ : B : = : 2nd : TAN

Leupold & Stevens, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1. This class has been						
very interesting	(5)	4	3	2	1	very boring
2. This class was						
very hard	5	(4)	3	2	1	very easy
3. On the job this class helped me						
to do more accurate work	5	(4)	3	2	1	not at all
4. The instructor was						
interesting	(5)	4	3	2	1	boring
5. I understood what I was supposed to learn						
most of the time	(5)	4	3	2	1	rarely
6. The materials were directly related to the objective						
always	(5)	4	3	2	1	rarely
7. Sufficient practice exercises were included						
too many	(5)	4	3	2	1	too few
8. I received sufficient feedback on my practice exercises						
always	(5)	4	3	2	1	rarely
9. The tests measured my performance on the objectives						
always	(5)	4	3	2	1	never

Skill Builders MT 5/2/91

10. I received sufficient feedback on my test results.

always	5	4	3	2	1	never

11. After being in this class, I would

like to have more training like this	5	4	3	2	1	no more training like this

12. This class has been

very useful to me on the job	5	4	3	2	1	totally useless to me on the job

13. What can you do now that you could not do before taking this class?

This was a Refresher Course to Brush up on Calculator Skills - it helped a lot.

14. Has this course helped you meet or work toward any of your personal goals? If so, how?

15. Would you recommend this course to a co-worker? Why or why not?

Yes, for a Refresher Course. More time required if material is new to people.

16. What did you like best about this course?

Course was kept very active and all were involved with Results.

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

THANK YOU FOR YOUR INPUT!

Note: Has been brought to our attention material supplied for Calculator application for right triangles from class does not represent the lettering for a right triangle. See attached pages. May be for next math class this could be changed.

Leupold & Stevens, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1. This class has been						
very interesting	5	(4)	3	2	1	very boring
2. This class was						
very hard	5	4	(3)	2	1	very easy
3. On the job this class helped me						
to do more accurate work	5	4	(3)	2	1	not at all
4. The instructor was						
interesting	5	(4)	3	2	1	boring
5. I understood what I was supposed to learn						
most of the time	(5)	4	3	2	1	rarely
6. The materials were directly related to the objective						
always	5	(4)	3	2	1	rarely
7. Sufficient practice exercises were included						
too many	5	4	(3)	2	1	too few
8. I received sufficient feedback on my practice exercises						
always	5	(4)	3	2	1	rarely
9. The tests measured my performance on the objectives						
always	5	(4)	3	2	1	never

Skill Builders MT 5/2/91

10. I received sufficient feedback on my test results.

always	5	(4)	3	2	1	never

11. After being in this class, I would

like to have more training like this	5	(4)	3	2	1	no more training like this

12. This class has been

very useful to me on the job	5	4	(3)	2	1	totally useless to me on the job

13. What can you do now that you could not do before taking this class?

I AM MORE COMFORTABLE DOING RIGHT TRIANGLE COMPUTATIONS

14. Has this course helped you meet or work toward any of your personal goals? If so, how?

MORE MATH PROFICIENCY

15. Would you recommend this course to a co-worker? Why or why not?

DEPENDS ON THEIR JOB NEEDS

16. What did you like best about this course?

LOCATION OF CLASSES (AT LES)

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

THANK YOU FOR YOUR INPUT!

Leupold & Stevens, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1. This class has been						
very interesting	5	(4)	3	2	1	very boring
2. This class was						
very hard	5	4	(3)	(2)	1	very easy
3. On the job this class helped me						
to do more accurate work	5	(4)	3	2	1	not at all
4. The instructor was						
interesting	5	(4)	3	2	1	boring
5. I understood what I was supposed to learn						
most of the time	(5)	4	3	2	1	rarely
6. The materials were directly related to the objective						
always	5	(4)	3	2	1	rarely
7. Sufficient practice exercises were included						
too many	5	(4)	3	2	1	too few
8. I received sufficient feedback on my practice exercises						
always	(5)	4	3	2	1	rarely
9. The tests measured my performance on the objectives						
always	5	(4)	3	2	1	never

Skill Builders MT 5/2/91

10. I received sufficient feedback on my test results.						
always	5	(4)	3	2	1	never
11. A..er being in this class, I would						
like to have more training like this	5	(4)	3	2	1	no moretraining like this
12. This class has been						
very useful to me on the job	(5)	4	3	2	1	totally useless to me on the joo

13. What can you do now that you could not do before taking this class?

I find it easy to do math calculations

14. Has this course helped you meet or work toward any of your personal goals? If so, how?

I wanted to refresh my memory on these math skills and thats exactly what it did

15. Would you recommend this course to a co-worker? Why or why not?

Yes I would recommend this course the way it was taught. Also I know most of the co-workers need a refresher course in these skills

16. What did you like best about this course?

[illegible]

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

THANK YOU FOR YOUR INPUT!

Leupold & Stevens, Inc.

Skip Finch
#2261
Dept 6027

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1.	This class has been					
very interesting	(5)	4	3	2	1	very boring
2.	This class was					
very hard	5	(4)	3	2	1	very easy
3.	On the job this class helped me					
to do more accurate work	5	(4)	3	2	1	not at all
4.	The instructor was					
interesting	(5)	4	3	2	1	boring
5.	I understood what I was supposed to learn					
most of the time	5	(4)	3	2	1	rarely
6.	The materials were directly related to the objective					
always	(5)	4	3	2	1	rarely
7.	Sufficient practice exercises were included					
too many	5	(4)	3	2	1	too few
8.	I received sufficient feedback on my practice exercises					
always	(5)	4	3	2	1	rarely
9.	The tests measured my performance on the objectives					
always	(5)	4	3	2	1	never

Skill Builders MT 5/2/91

10. I received sufficient feedback on my test results.

always	5	4	3	2	1	never

11. After being in this class, I would

like to have more training like this	5	4	3	2	1	no more training like this

12. This class has been

very useful to me on the job	5	4	3	2	1	totally useless to me on the job

13. What can you do now that you could not do before taking this class?

Be more secure, and more patience

14. Has this course helped you meet or work toward any of your personal goals? If so, how?

Yes, this could help me prepare for some other work ~~else~~. Course.

15. Would you recommend this course to a co-worker? Why or why not?

YES! Because people need to continue learning skill

16. What did you like best about this course?

The improvement of my basic math.

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

THANK YOU FOR YOUR INPUT!

Leupold & Stevens, Inc.

Blueprint Math Classes

SUPERVISOR EVALUATION

Participant_____ Job Title TECHNICIAN B

What effect did the participation in the math class have on your employee? Circle the number in that applies for each item.

1.	The trainee indicated that the course was well designed and helpful.					
Very well done	5	(4)	3	2	1	poor
2.	He/she mastered the material he/she was taught.					
definitely	5	(4)	3	2	1	not at all
3.	He/she has greater cooperation and/or problem solving ability since the class.					
Yes	5	(4)	3	2	1	I see no difference
4.	The trainee applies the skills learned in class on the job.					
Yes	5	(4)	3	2	1	I see no difference
5.	How do you think the employee will be able to handle new procedures introduced into your department?					
Much better	5	(4)	3	2	1	Much worse

6. What was the most positive effect of this course on the employee?

It's important to ____ to have the opportunity to continue learning. He appreciates the fact that it's available at L+S

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

Skill Builders MT 5/2/91

Leupold & Stevens, Inc.

Blueprint Math Classes

SUPERVISOR EVALUATION

Participant_____ Job Title Instrument Assembler B

What effect did the participation in the math class have on your employee? Circle the number in that applies for each item.

1.	The trainee indicated that the course was well designed and helpful.					
Very well done	5	4	(3)	2	1	poor
2.	He/she mastered the material he/she was taught.					
definitely	5	4	3	(2)	1	not at all
3.	He/she has greater cooperation and/or problem solving ability since the class.					
Yes	5	4	3	(2)	1	I see no difference
4.	The trainee applies the skills learned in class on the job.					
Yes	5	4	(3)	2	1	I see no difference
5.	How do you think the employee will be able to handle new procedures introduced into your department?					
Much better	5	4	(3)	2	1	Much worse

6. What was the most positive effect of this course on the employee?

The fact that I feel She CONVINCED herself that She could Learn the Math Computations, She Needs in her Daily work.

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

Skill Builders MT 5/2/91

Leupold & Stevens, Inc.

Blueprint Math Classes

SUPERVISOR EVALUATION

Participant_____ Job Title Inventory Assistant

What effect did the participation in the math class have on your employee? Circle the number in that applies for each item.

1.	The trainee indicated that the course was well designed and helpful.					
Very well done	5	(4)	3	2	1	poor
2.	He/she mastered the material he/she was taught.					
definitely	5	(4)	3	2	1	not at all
3.	He/she has greater cooperation and/or problem solving ability since the class.					
Yes	5	4	(3)	2	1	I see no difference
4.	The trainee applies the skills learned in class on the job.					
Yes	(5)	4	3	2	1	I see no difference
5.	How do you think the employee will be able to handle new procedures introduced into your department?					
Much better	(5)	4	3	2	1	Much worse

6. What was the most positive effect of this course on the employee?

Improved level of confidence in working with math situations

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

Skill Builders MT 5/2/91

Leupold & Stevens, Inc.

Blueprint Math Classes

SUPERVISOR EVALUATION

Participant ______ Job Title *Purchasing assistant*

What effect did the participation in the math class have on your employee? Circle the number in that applies for each item.

1. The trainee indicated that the course was well designed and helpful.

Very well done 5 (4) 3 2 1 poor

2. He/she mastered the material he/she was taught.

definitely 5 (4) 3 2 1 not at all

3. He/she has greater cooperation and/or problem solving ability since the class.

Yes 5 4 (3) 2 1 I see no difference

4. The trainee applies the skills learned in class on the job.

Yes (5) 4 3 2 1 I see no difference

5. How do you think the employee will be able to handle new procedures introduced into your department?

Much better (5) 4 3 2 1 Much worse

6. What was the most positive effect of this course on the employee?

Increased level of confidence concerning math related duties

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

Skill Builders MT 5/2/91

Leupold & Stevens, Inc.

MAY 1 0 1991

Blueprint Math Classes

SUPERVISOR EVALUATION

Participant_ _____ Job Title_____

What effect did the participation in the math class have on your employee? Circle the number in that applies for each item.

1.	The trainee indicated that the course was well designed and helpful.					
Very well done	5	(4)	3	2	1	poor
2.	He/she mastered the material he/she was taught.					
definitely	5	4	(3)	2	1	not at all
3.	He/she has greater cooperation and/or problem solving ability since the class.					
Yes	5	4	(3)	2	1	I see no difference
4.	The trainee applies the skills learned in class on the job.					
Yes	5	4	3	(2)	1	I see no difference
5.	How do you think the employee will be able to handle new procedures introduced into your department?					
Much better	5	4	(3)	2	1	Much worse

6. What was the most positive effect of this course on the employee?

Continuing education along this line helps him to understand his and other peoples work better.

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

Skill Builders MT 5/2/91

Leupold & Stevens, Inc.

Blueprint Math Classes

SUPERVISOR EVALUATION

Participant_____ Job Title_____

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Very well done	5	(4)	3	2	1 poor

2. He/she mastered the material he/she was taught.

definitely	5	(4)	3	2	1 not at all

3. He/she has greater cooperation and/or problem solving ability since the class.

Yes	5	4	3	2	(1) I see no difference

4. The trainee applies the skills learned in class on the job.

Yes	5	4	3	(2)	1 I see no difference

5. How do you think the employee will be able to handle new procedures introduced into your department?

Much better	5	(4)	3	2	1 Much worse

6. What was the most positive effect of this course on the employee?

Satisfaction of learning

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

Skill Builders MT 5/2/91

Leupold & Stevens, Inc.

Blueprint Math Classes

SUPERVISOR EVALUATION

Participant_____ Job Title Machine Operator

What effect did the participation in the math class have on your employee? Circle the number in that applies for each item.

1. The trainee indicated that the course was well designed and helpful.

Very well done	(5)	4	3	2	1 poor

2. He/she mastered the material he/she was taught.

definitely	(5)	4	3	2	1 not at all

3. He/she has greater cooperation and/or problem solving ability since the class.

Yes	5	4	(3)	2	1 I see no difference

4. The trainee applies the skills learned in class on the job.

Yes	5	(4)	3	2	1 I see no difference

5. How do you think the employee will be able to handle new procedures introduced into your department?

Much better	5	(4)	3	2	1 Much worse

6. What was the most positive effect of this course on the employee?

Self confidence

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

Skill Builders MT 5/2/91

Leupold & Stevens, Inc.

Blueprint Math Classes

SUPERVISOR LVALUATION

Participant_____ Job Title Machine Operator

What effect did the participation in the math class have on your employee? Circle the number in that applies for each item.

1.	The trainee indicated that the course was well designed and helpful.					
Very well done	(5)	4	3	2	1	poor
2.	He/she mastered the material he/she was taught.					
definitely	5	(4)	3	2	1	not at all
3.	He/she has greater cooperation and/or problem solving ability since the class.					
Yes	5	(4)	3	2	1	I see no difference
4.	The trainee applies the skills learned in class on the job.					
Yes	(5)	4	3	2	1	I see no difference
5.	How do you think the employee will be able to handle new procedures introduced into your department?					
Much better	5	(4)	3	2	1	Much worse

6. What was the most positive effect of this course on the employee?

Self confidence

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

Skill Builders MT 5/2/91

Leupold & Stevens, Inc.

Blueprint Math Classes

SUPERVISOR EVALUATION

Participant _____ Job Title Machine Operator

What effect did the participation in the math class have on your employee? Circle the number in that applies for each item.

1.	The trainee indicated that the course was well designed and helpful.					
Very well done	(5)	4	3	2	1	poor
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Yes	5	4	(3)	2	1	I see no difference
4.	The trainee applies the skills learned in class on the job.					
Yes	5	(4)	3	2	1	I see no difference
5.	How do you think the employee will be able to handle new procedures introduced into your department?					
Much better	5	(4)	3	2	1	Much worse

6. What was the most positive effect of this course on the employee?

Self confidence

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

Skill Builders MT 5/2/91

Leupold & Stevens, Inc.

Blueprint Math Classes

SUPERVISOR EVALUATION

Participant_____ Job Title Machine Set-up

What effect did the participation in the math class have on your employee? Circle the number in that applies for each item.

1.	The trainee indicated that the course was well designed and helpful.					
Very well done	5	(4)	3	2	1	poor
2.	He/she mastered the material he/she was taught.					
definitely	(5)	4	3	2	1	not at all
3.	He/she has greater cooperation and/or problem solving ability since the class.					
Yes	5	4	(3)	2	1	I see no difference
4.	The trainee applies the skills learned in class on the job.					
Yes	5	(4)	3	2	1	I see no difference
5.	How do you think the employee will be able to handle new procedures introduced into your department?					
Much better	5	4	(3)	2	1	Much worse

6. What was the most positive effect of this course on the employee?

Self confidence

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

Skill Builders MT 5/2/91

Leupold & Stevens, Inc.

Blueprint Math Classes

SUPERVISOR EVALUATION

Participant. _____ Job Title Machine Operator

What effect did the participation in the math class have on your employee? Circle the number in that applies for each item.

1. The trainee indicated that the course was well designed and helpful.

Very well done	(5)	4	3	2	1 poor

2. He/she mastered the material he/she was taught.

definitely	(5)	4	3	2	1 not at all

3. He/she has greater cooperation and/or problem solving ability since the class.

Yes	5	(4)	3	2	1 I see no differ-

4. The trainee applies the skills learned in class on the job.

Yes	5	(4)	3	2	1 I see no difference

5. How do you think the employee will be able to handle new procedures introduced into your department?

Much better	5	4	(3)	2	1 Much worse

6. What was the most positive effect of this course on the employee?

Understanding Material

Self confidence

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

Skill Builders MT 5/2/91

Leupold & Stevens, Inc.

Blueprint Math Classes

SUPERVISOR EVALUATION

Participant _____ Job Title Machine Operator

What effect did the participation in the math class have on your employee? Circle the number in that applies for each item.

1.	The trainee indicated that the course was well designed and helpful.					
Very well done	(5)	4	3	2	1	poor
2.	He/she mastered the material he/she was taught.					
definitely	5	(4)	3	2	1	not at all
3.	He/she has greater cooperation and/or problem solving ability since the class.					
Yes	(5)	4	3	2	1	I see no difference
4.	The trainee applies the skills learned in class on the job.					
Yes	(5)	4	3	2	1	I see no difference
5.	How do you think the employee will be able to handle new procedures introduced into your department?					
Much better	(5)	4	3	2	1	Much worse

6. What was the most positive effect of this course on the employee?

Self confidence

understanding of material

THANK YOU FOR YOUR INPUT!

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Skill Builders MT 5/2/91

Leupold & Stevens, Inc.

Blueprint Math Classes

SUPERVISOR EVALUATION

Participant_ _____ Job Title_____

What effect did the participation in the math class have on your employee? Circle the number in that applies for each item.

1. The trainee indicated that the course was well designed and helpful.					
Very well done	5	4	3	(2)	1 poor
2. He/she mastered the material he/she was taught.					
definitely	5	(4)	3	2	1 not at all
3. He/she has greater cooperation and/or problem solving ability since the class.					
Yes	5	4	3	2	1 I see no difference
4. The trainee applies the skills learned in class on the job.					
Yes	5	4	3	2	1 I see no difference
5. How do you think the employee will be able to handle new procedures introduced into your department?					
Much better	5	4	3	2	1 Much worse

6. What was the most positive effect of this course on the employee?

opened the door to new opportunities.

_____

_____

_____

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY MAY 16, 1991.

Skill Builders MT 5/2/91

SPRING EVALUATIONS

Leupold & Stevens, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1. This class has been						
very interesting	(5)	4	3	2	1	very boring
2. This class was						
very hard	5	4	(3)	2	1	very easy
3. On the job this class helped me						
to do more accurate work	5	(4)	3	2	1	not at all
4. The instructor was						
interesting	5	(4)	3	2	1	boring
5. I understood what I was supposed to learn						
most of the time	5	4	(3)	2	1	rarely
6. The materials were directly related to the objective						
always	5	4	(3)	2	1	rarely
7. Sufficient practice exercises were included						
too many	5	(4)	3	2	1	too few
8. I received sufficient feedback on my practice exercises						
always	(5)	4	3	2	1	rarely
9. The tests measured my performance on the objectives						
always	5	4	(3)	2	1	never

Skill Builders MT 5/2/91

10. I received sufficient feedback on my test results.

always	5	4	3	2	1	never

11. After being in this class, I would

like to have more training like this	5	4	3	2	1	no moretraining like this

12. This class has been

very useful to me on the job	5	4	3	2	1	totally useless to me on the job

13. What can you do now that you could not do before taking this class?

work a lot better with Percentage And using the Calculator to obtain my answer

14. Has this course helped you meet or work toward any of your personal goals? If so, how?

15. Would you recommend this course to a co-worker? Why or why not?

Yes. if only to refresh your mine they would be surprise at what they thought they knew it was.

16. What did you like best about this course?

Learning more about the usage of Percentage and how to get the ans.

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON

THANK YOU FOR YOUR INPUT!

Leupold & Stevens, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1. This class has been						
very interesting	(5)	4	3	2	1	very boring
2. This class was						
very hard	5	4	3	(2)	1	very easy
3. On the job this class helped me						
to do more accurate work	5	4	3	(2)	1	not at all
4. The instructor was						
interesting	5	(4)	3	2	1	boring
5. I understood what I was supposed to learn						
most of the time	(5)	4	3	2	1	rarely
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always	(5)	4	3	2	1	rarely
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too many	(5)	4	3	2	1	too few
8. I received sufficient feedback on my practice exercises						
always	(5)	4	3	2	1	rarely
9. The tests measured my performance on the objectives						
always	5	(4)	3	2	1	never

Skill Builders MT Rev 6/13/91

10. I received sufficient feedback on my test results.

always	5	4	3	2	1	never

11. After being in this class, I would

like to have more training like this	5	4	3	2	1	no more training like this

13. What can you do now that you could not do before taking this class?

four cubic inches of right wiring.

14. Has this course helped you meet or work toward any of your personal goals? If so, how?

not really

15. Would you recommend this course to a co-worker? Why or why not?

Yes, it was informative & will be helpful

16. What did you like best about this course? Least?

the flexibility the test ... she was a little disorganized for those of us who were working ahead of the regular class.

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY JUNE 20, 1991.

THANK YOU FOR YOUR INPUT!

Leupold & Stevens, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1. This class has been						
very interesting	5	4	(3)	2	1	very boring
2. This class was						
very hard	5	4	(3)	2	1	very easy
3. On the job this class helped me						
to do more accurate work	5	4	(3)	2	1	not at all
4. The instructor was						
interesting	5	(4)	3	2	1	boring
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most of the time	5	(4)	3	2	1	rarely
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always	5	4	(3)	2	1	rarely
7. Sufficient practice exercises were included						
too many	5	4	3	(2)	1	too few
8. I received sufficient feedback on my practice exercises						
always	5	4	(3)	2	1	rarely
9. The tests measured my performance on the objectives						
always	5	(4)	3	2	1	never

Skill Builders MT 5/2/91

10. I received sufficient feedback on my test results.

always	5	(4)	3	2	1	never

11. After being in this class, I would

like to have more training like this	5	4	(3)	2	1	no more training like this

12. This class has been

very useful to me on the job	5	4	(3)	2	1	totally useless to me on the job

13. What can you do now that you could not do before taking this class?

It refreshed my memory on multiplying and dividing fractions and decimals

14. Has this course helped you meet or work toward any of your personal goals? If so, how?

No

15. Would you recommend this course to a co-worker? Why or why not?

yes. The work in this dept. has a lot of math involved so the more math anyone learns it will help th

16. What did you like best about this course?

It refreshed my memory on certain math problems.

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON

THANK YOU FOR YOUR INPUT!

Leupold & Stevens, Inc.

Math Skills Class

SUPERVISOR EVALUATION

Participant_ _____ Job Title_____

What effect did the participation in the math class have on your employee? Circle the number that applies for each item.

1.	The trainee indicated that the course was well designed and helpful.					
Very well done	5	4	(3)	2	1	poor
2.	He/she mastered the material he/she was taught.					
definitely	5	4	(3)	2	1	not at all
3.	He/she has greater cooperation and/or problem solving ability since the class.					
Yes	5	(4)	3	2	1	I see no difference
4.	The trainee applies the skills learned in class on the job.					
Yes	5	(4)	3	2	1	I see no difference
5.	How do you think the employee will be able to handle new procedures introduced into your department?					
Much better	5	4	(3)	2	1	Much worse

6. What was the most positive effect of this course on the employee?

Refreshed her memory on how to use Decimals

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY JUNE 20, 1991.

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Leupold & Stevens, Inc.

Math Skills Class

SUPERVISOR EVALUATION

Participant_____ Job Title_____

What effect did the participation in the math class have on your employee? Circle the number that applies for each item.

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4.	The trainee applies the skills learned in class on the job.					
Yes	(5)	4	3	2	1	I see no difference
5.	How do you think the employee will be able to handle new procedures introduced into your department?					
Much better	5	(4)	3	2	1	Much worse

6. What was the most positive effect of this course on the employee?

refreshed her memory on Math Skills

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY JUNE 20, 1991.

Skill Builders MT rev. 6/13/91

Leupold & Stevens, Inc.

Math Skills Class

SUPERVISOR EVALUATION

Participant_____ Job Title_____

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5.	How do you think the employee will be able to handle new procedures introduced into your department?					
Much better	5	4	3	2	1	Much worse

6. What was the most positive effect of this course on the employee?

_____

_____

_____

_____

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY JUNE 20, 1991.

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Leupold & Stevens, Inc.

Math Skills Class

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5.	How do you think the employee will be able to handle new procedures introduced into your department?					
Much better	5	(4)	3	2	1	Much worse

6. What was the most positive effect of this course on the employee?

Refreshed his memory

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY JUNE 20, 1991.

Skill Builders MT rev. 6/13/91

Math Skills

Sample Materials

developed by Marjorie A. Taylor
for
Portland Community College & Leupold & Stevens, Inc

Blueprint Math

Objective: Using Blueprint #44255, the student will locate and label the main parts of the title block and identify and locate symbols for tolerances decimals, diameter, radius, & degree.

1. Purpose & steps in using blueprints.

2. Identify and label the main parts of a title block.

   - Location and purpose of title block.

   - List main parts of a title block. The main parts include the following:

     part name, part number, material, tolerances, draftsman, checker, company name, & scale.

   - Label the main parts on a title block.

   - Using scale.

3. Locate symbols and specifications for tolerances.

   - Tell when to use two place and three place decimal tolerances.

   - Locations tolerances are found on blueprints.

4. Locate and identify symbols showing decimals, diameter, radius, & degree.

Blueprint Math Pre-test

Name_____ Date_____

1. The titleblock is usually located _____on blueprints.

2. The purpose of the titleblock is to_____.

3. Using blueprint # 44255, match the correct answers with each item given in the titleblock.

   a) Company name:_____

   b) Part name:_____

   c) Part number:_____

   d) Material to use:_____

   e) Draftsman: _____

   f) Checker:_____

   g) Tolerances: _____

   h) Scale: _____

4. Using blueprint # 44255, show what tolerance will be added and subtracted to each number below.

   a) .750_____ b) .175_____ c) 3.25_____

   d) .50_____ e) 3.087_____

5. In addition to the titleblock where else are tolerances located?_____

   Show an example of this_____

6. Give a measurement and a bilateral tolerance from blueprint #44255 _____

7. Give degrees and a bilateral tolerance from blueprint #44255_____

8. Give a diameter measurement from the blueprint._____

   What symbol indicates diameter?_____

9. Give a radius measurement from the blueprint._____

   What symbol indicates radius? _____

BLUEPRINT WORKSHEET Name_____

Choose one of the blueprints provided to answer the questions below. Check your answers with another student or an instructor.

1. Blueprint # _____

2. Where is the title block found on this blueprint?_____

3. Give a measurement with its bilateral tolerance. _____

4. Give an unilateral tolerance from this blueprint if there is one on it._____

5. What material is to be used? (If a name is not given, give the number.) _____

6. What scale is the part drawn to?_____

   Is it smaller or larger than the drawing?_____

   Why do you think this scale was chosen?_____ _____

7. If the scale is 2/1 on a blueprint and the measurement given is 3.570. How large will the drawing measure with a ruler?

   _____

8. How will the scale of the blueprint affect the degrees shown on the drawing? If you were to measure the degrees with a compass would it be the same, larger, or smaller?

   _____

9. Is this blueprint in inches or millimeters? _____

10. What date did the latest change occur on this blueprint? _____

Blueprint Math Post Test

Name_____ Date_____

Use Blueprint # 44255 to answer the items below.

1. Where is the Titleblock usually found on blueprints ? _____

2. List the main parts of a titleblock and the item indicated on blueprint #44255.

Main part	L & S title

3. According to the blueprint, what tolerances will be added or subtracted to the given numbers.

a) .650 b) .175 c) .250

d) 90 degrees e) .750 f) .35

4. What kind of line is (A) ? _____

5. What kind of line is (B) ? _____

6. What kind of lines are (C) ? _____

7. When was the ring released for preproduction? _____

8. What is the diameter of the center hole? _____

9. If the scale is 1/1 on a blueprint and the measurement given is 3.570, how large is the dimension if you measured it with a ruler?

_____

10. When was this blueprint designed? What was the last date changes were made?

_____ _____

CALCULATOR MATH

GOAL: Using a calculator, the student will add, subtract, multiply, and divide accurately.

1. Label the main functions on a calculator
   - Locate on/off key
   - Turn calculator on/off
   - Locate function symbols and identify
   - Locate the clear and clear entry keys
   - Locate "readout", number keys, & decimal point

2. Perform whole number addition operations on a calculator
   - Define place value for whole numbers
   - Write place values up to the billions place
   - Use vocabulary words
   - Estimate reasonable answers to addition problems
   - Add using a calculator
   - Discuss ways to check answers

3. Perform whole number subtraction operations on a calculator
   - Define subtraction vocabulary
   - Subtract using a calculator
   - Discuss ways to check answers

4. Perform whole number multiplication operations on a calculator
   - Define multiplication vocabulary
   - Multiply using a calculator
   - Discuss ways to check answers

5. Perform whole number division operations on a calculator
   - Define vocabulary words used in division
   - Distinguish division symbols
   - Divide using a calculator
   - Discuss ways to check answers

CRITICAL THINKING

GOAL: Using a calculator, the student will correctly solve a variety of word problems using addition, subtraction, multiplication, or division of whole numbers.

1. Read a word problem and determine what the problem is asking.
   - Verbalize what the problem is
   - Write correctly what needs to be found including the units

2. Indicate which operation or operations will be used.
   - Determine whether the problem involves addition, subtraction, multiplication, or division or a combination of these
   - Write the order of operations

3. Solve the problem
   - Calculate the answer
   - Determine if the solution answers the problem
   - Determine if the answer is a reasonable answer
   - Reread the problem, check figures and calculations

Skill Builders MT: 1/92

Decimals

Objective: Using the Leupold & Stevens blueprint and the Variables Control Chart, the student will read and compare decimal values, calculate decimal tolerances, and compare decimal values of five parts.

1. Read and compare decimal values

   - Meaning of decimals

   - Using decimals on a blueprint

   - Decimal place values

   - Rounding off decimals

   - Comparing decimals

   -Writing decimals in value order

2. Calculate decimal tolerances

   - Read and add decimals needed on blueprints

   - Add decimals using a calculator

   - Subtract decimals on blueprints

   - Subtract decimals using a calculator

3. Compare decimal values of five parts

DECIMAL PRE-TEST

Name_____ Date_____

1. Write the equivalent decimal for the following fractions.

   a) 3/10 =_____ b) 35/100=_____

   c) 72/100=_____ d) 25/1000=_____ e) 3/1000=_____

2. Arrange in descending order (largest first)

   a) .03, .003, .3, .003 _____ _____ _____ _____

   b) 1.38, .138, .1385, 1.385 _____ _____ _____ _____

   c) .25, 1.2, .125 .0702 _____ _____ _____ _____

3. Arrange in ascending order (smallest first)

   a) .302, .28, 2.3, .32 _____ _____ _____ _____

   b) .462, .4023, .47, 4.2 _____ _____ _____ _____

   c) .07, 7.35, .876, 7.3 _____ _____ _____ _____

4. Give the correct decimal numbers for the following words.

   a) six tenths = _____ b) three hundredths = _____

   c) one and thirty-three hundredths = _____

d) one and one thousandths = _____

e) one thousand one hundred eleven and one hundred fifteen thousandths

_____

5. Write the correct place value for the spaces shown below. Two have been done for you.

_____ units . _____ thousandths

6. Round off the following numbers to the nearest hundredth.

a) 1.093 = _____ b) 231.695 = _____

7. Use these symbols <, >, = to compare the following numbers.

a) .3 _____ .9 b) .8 _____ .409 c) 9.2 _____ .092

d) .5 _____ .28 e) 3.004 _____ 3.0040

8. Mary clocked in a total of 10 hours at work. If she spent 7.7 hours repairing scopes, how much time was left for other activities? How much time is this in hours and minutes?

Variables Control Chart

Name_____ Date_____

We are only examining the sample measurements on this chart. They are the figures given for each day on the bottom third of the page. (We will discuss averages and ranges in another class.)

1. Find the name of the product. _____

2. What are the specification limits? (hint: look in box on top right side.)

_____

3. Can you figure out from the graph what the norm is?

_____

4. Write the measurement samples for 7/18/90, 6:30 AM.

a)_____ b)_____ c)_____

d)_____ e)_____

5. Arrange the measurements above in order from the smallest to the largest. Put a "1" by the smallest, a "2" by the next one and so on.

6. Calculate the amount that the part misses ideal specification.
Example from 7/16/90: .9238
-.9235 (ideal measurement)
.0003 larger than ideal specifications

a) b)

c) d)

e)

7. Are any of the measurements outside of the specification limits?

8. On your calculator add the 5 measurements. Is your answer the same as the sum given on the chart? (Remember, these are all decimal values.)

9. For practice you may want to add some of the other samples. Some of the sums given are incorrect.

Rounding Decimals through Thousandths

Name_____ Date_____

Round the decimal below to the nearest thousandth.

5 5. 7 1 6 8

1. Underline the place digit to be rounded. 5 5. 7 1 6 8

2 .Look at the digit to the right of the underlined digit. That digit is 8. 5 5 . 7 1 6 8

3. If the digit to the right of the underlined digit is 5 or greater than 5, increase the underlined digit by 1. If the digit to the right of the underlined digit is less than 5, the underlined digit remains the same. The 8 is greater than 5, so the underlined digit is increased to 7.

4. All digits to the right of the underlined digit are dropped. The 8 in the ten thousandths position will be dropped. 5 5 . 7 1 7

Complete the three columns below. First round each decimal to the nearest tenth, then the nearest hundredth, and then to the nearest thousandth.

	Decimal to be rounded	tenths	hundredths	thousandths
1.	0.05213	_____	_____	_____
2.	17.52481	_____	_____	_____
3.	.4288	_____	_____	_____
4.	1.3673	_____	_____	_____
5.	99.8810	_____	_____	_____

DECIMAL POST TEST

Name_____ Date_____

1. Write the equal decimal for the following fractions.

   a) 50/100 = _____ b) 35/10000 = _____

   c) 123/100 = _____ d) 4/10 = _____

2. Use the decimals from #1 and write their correct names.

   a) _____ b) _____

   c) _____ d) _____

3. Fill in each blank with the correct decimal.

   a) _____ eight and four tenths

   b) _____ forty-eight millionths

   c) _____ eighty-four hundreds

   d) _____ eighty-four thousandths

4. Circle the decimals that are equal.

   a) .009 0.09 .090 b) 32.05 32.050 3.205

   c) .1500 0.15 .015 d) .3345 3.345 3.3450

5. Write the decimals in order from largest to smallest.

   a) .9123 .9238 .912 .91233 .92387

   _____ _____ _____ _____ _____

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6. Write the decimals in order, from smallest to largest.

a) .39 .039 .0039 3.9 b) .009 .0900 .9000 .00900

____ ____ ____ ____ ____ ____ ____ ____

7. Round each decimal below to the nearest thousandth and ten thousandth.

		thousandth	ten thousandth
a)	.05123	_____	_____
b)	36.52147	_____	_____
c)	.33377	_____	_____
d)	999.12345	_____	_____

8. Use the Variables Control Chart for the following problems.

a) Select one time and date. List below the measurements for that time.

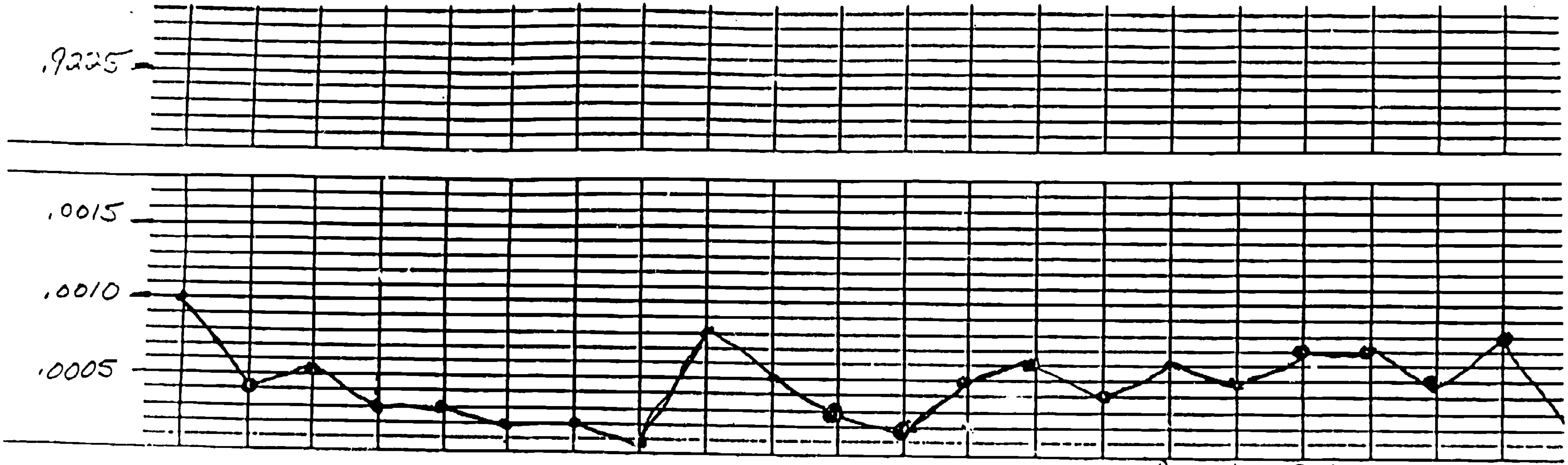
_____ _____ _____ _____ _____

b) Show the amount each measurement is above or below norm. Indicate with a + if it is above ideal. Indicate with a - if it is below.

c) Arrange the measurements in value from largest to smallest.

_____ _____ _____ _____ _____

d) On your calculator add each measurement. _____ (Note: your total may not agree with the total indicated.)



PM PM PM

DATE		7-15		7-16	7-16	7-16	7-16	7/16/90	7/16/90	7/16/90	7-16
TIME		7:35 PM	11:50 PM	1:30 AM	3:20	5:30	7:00	8:10 AM	1:20 PM	5:00 PM	8:30 PM
SAMPLE MEASUREMENTS	1	.9229	.9232	.9234	.9234	.9238	.9237	.9231	.9231	.9230	.9240
	2	.9225	.9231	.9234	.9237	.9235	.9239	.9231	.9231	.9236	.9235
	3	.9230	.9230	.9230	.9236	.9238	.9237	.9230	.9231	.9232	.9239
	4	.9227	.9229	.9230	.9237	.9236	.9238	.9232	.9231	.9236	.9240
	5	.9225	.9232	.9235	.9235	.9237	.9238	.9231	.9232	.9235	.9240
SUM		4.6196		4.6163	4.6179	4.6186	4.6189	4.6155	4.6156	4.6171	4.6194
AVERAGE, X̄		.92392	.92306	.9232	.9234	.9237	.9238	.9231	.92312	.92342	.92399
RANGE, R		.0010	.0004	.0005	.0003	.0003	.0002	.0002	.0001	.0008	.0005
Initial		[illegible]	[illegible]	Ad.	Aw	Aw	Aw	RH	RH	Kol	Kol

DATE	7-17	7-17	7-17	7-17	7/17	7-17	7-17	7-17	7-18	7-18	7-18	[illegible]
TIME	1:00 AM	3:00 AM	5:00 AM	7:00 AM	11:00 AM	5:30 PM	7:45	11:17	11:00	4:50	6:30	8:[illegible]
1	.9237	.9237	.9238	.9240	.9235	.9240	.9238	.9235	.9239	.9236	.9240	.9[illegible]
2	.9235	.9237	.9240	.9237	.9236	.9242	.9239	.924[illegible]	.9236	.9237	.9238	.9[illegible]
3	.9236	.9237	.9238	.9239	.9230	.9243	.9237	.9237	.9234	.9237	.9249	.9[illegible]
4	.9236	.9237	.9236	.9235	.9235	.9240	.9240	.924[illegible]	.9238	.9238	.9236	.9[illegible]
5	.9235	.9235	.9236	.9236	.9232	.9239	.9235	.924[illegible]	.9241	.9241	.9237	.9[illegible]
SUM	4.618	4.6183	4.6188	4.6187	4.6171	4.6202	4.6189	4.619[illegible]	4.6194	4.6189	4.6195	[illegible]
AVERAGE, X̄	.9236	.9237	.9238	.9237	.9234	.92404	.92378	.9239	.9239	.9238	.9239	.92[illegible]
RANGE, R	.0003	.0[illegible]	.0004	.0005	.0004	.0004	.0005	.0007	.0007	.0005	.0008	.0[illegible]
Initial	Aw	Aw	Aw	Aw	MCR	Pae	[illegible]	[illegible]	Aw	Aw	Aw	[illegible]

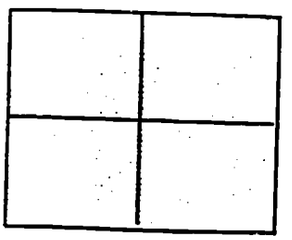
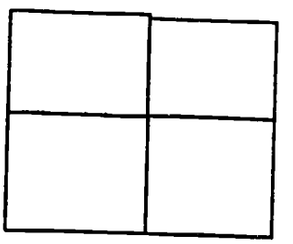
221

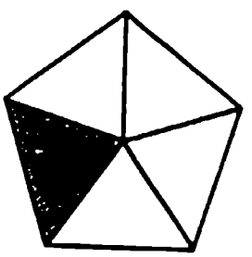
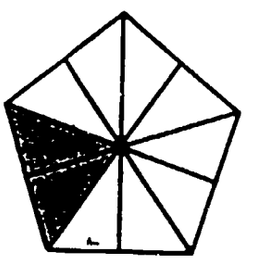
222

FRACTION PRE- TEST

Name_____ Date_____

1. Write a fraction or mixed number for the shaded portions of the pictures.



=



=

2. Change the following to either a mixed number or an improper fraction.

15/7 = _____ 7 2/3 = _____

3. Compare the pairs of fractions and mixed numbers by using <, >, or =.

1/2 _____ 1/3 5 1/8 _____ 5 2/16 6 2/7 _____ 6 9/21

4. 125 maintubes were manufactured on one machine during day shift. A total of 250 maintubes were manufactured in three shifts. What fraction of the tubes were manufactured during day shift?

5. Supply the missing number in the following.

$\frac{3}{4} = \frac{24}{\quad}$ $\frac{\quad}{8} = \frac{5}{40}$ $\frac{1}{9} = \frac{\quad}{54}$ $\frac{7}{\quad} = \frac{21}{30}$

6. Find the lowest common denominator for each pair of fractions.

3/4, 5/6 = _____ 1/5, 4/15 =_____ 1/2, 3/8 =_____

7. Add:

11 1/8	9 3/14	17 1/5
+ 2 5/12	+ 2/3	+ 41 3/4

8. Subtract:

88 5/6	13 1/12	10 1/2
- 53 1/6	- 7 11/12	- 3 2/7

9. Change these to decimals.

2 1/4 _____ 5/10 _____ 2/3 _____

10. Rosa assembled thirty-five scopes in a day. The first hour she assembled three scopes. What fraction of the total is this?

FRACTION DECIMAL CONVERSIONS

Name_____ Date_____

Use the attached blueprints to convert the given fractions to decimals. You are the engineer who must change these fractions to decimals and replace them on the blank blueprints where the fractions were shown.

What are some reasons our present blueprints are written in decimals?

Converting fractions to decimals

A. Change 3/4 to a decimal.

* Divide 3 by 4. $3 \div 4 =$ or $4\overline{)3.00}$ = .75

B. Change 1 1/5 to a decimal.

* First change the mixed number to an improper fraction.

1 1/5 = 6/5

* Then divide 6 by 5. $6 \div 5 =$ or $5\overline{)6.0}$ = 1.2

C. Change 1/3 to a decimal.

* Divide 1 by 3. $3 \div 1 =$ or $3\overline{)1.00}$ = .33 1/3 = .33

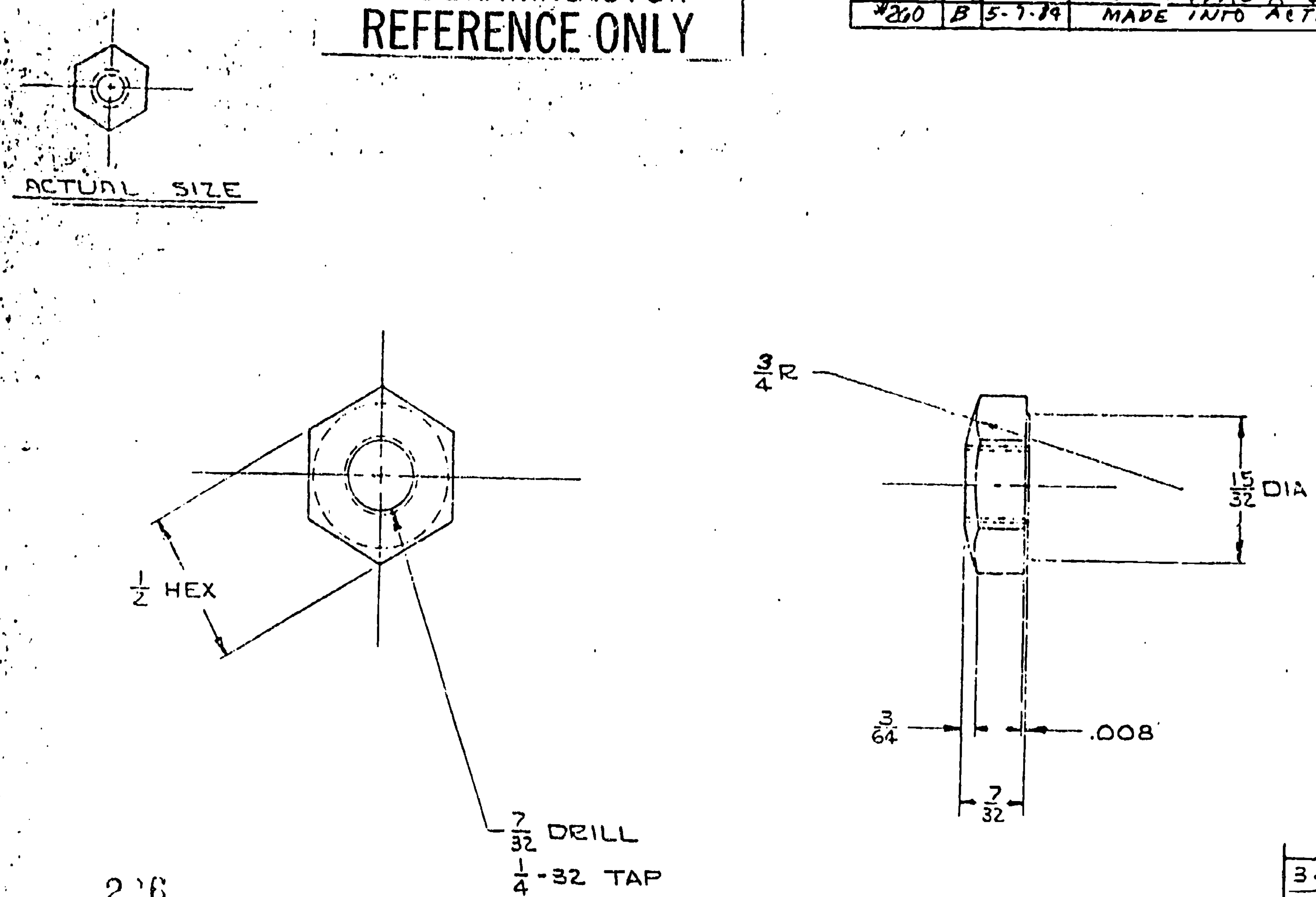
The first two examples are **terminating decimals** because there were no remainders. The third example is a **repeating decimal** because the remainder of 1 keeps repeating. In such a case, stop dividing after two decimal places and write the remainder as a fraction or round it off to the nearest hundredth.

Skill Builders MT 3/8/91

DRAWING NUMBER	LIMITS ON DIMENSIONS UNLESS OTHERWISE SPECIFIED			LEUPOLD & STEVENS INSTRUMENTS, INC. PORTLAND, OREGON	DRAWING NUMBER
1-10074	FRACTIONAL ± .008	DECIMAL ± .002	ANGULAR ± 1/2°		1-10074

THIS DRAWING IS FOR REFERENCE ONLY

	REVISION		
	NO.	DATE	DESCRIPTION
	A	1-[illegible]	1-10074 WAS A-61
#260	B	5-7-79	MADE INTO ACTIVE PART



226

3-27420	1
3-27393	1
3-25985	1
3-25984	1
VERT. ASSY.	REQ'D

227

1-21008

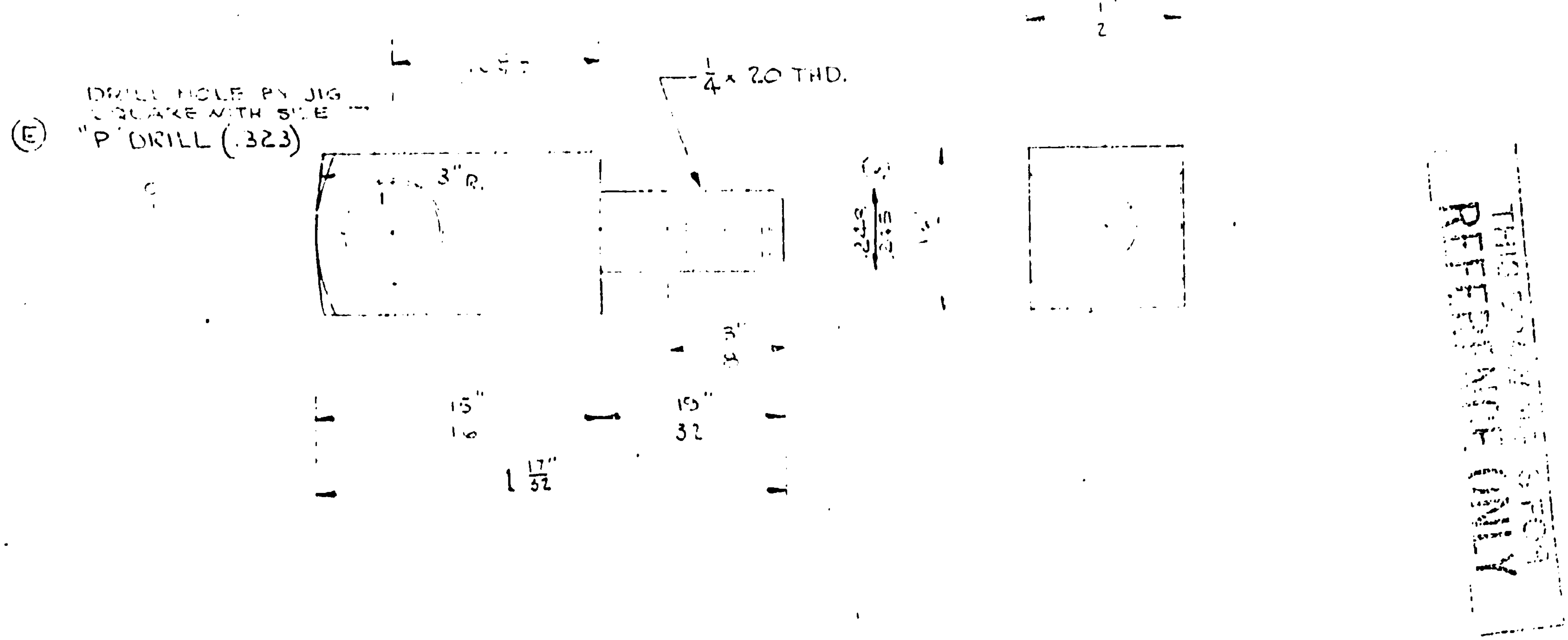
BEST COPY A...

DRAWN BY	MATERIAL		NAME	DRAWING NUMBER
GIBSON	ALUM. 1/2 HEX x 7/32 LG		HEX NUT-MS 1/4-32 AL 1/4-15/32-1/2	1-10074
	PROTECTIVE FINISH: ANODIZE	NO. REQ. / NEXT ASSEMBLY	FOR	

DRAWING NUMBER 1-10020

LIMITS ON DIMENSIONS UNLESS OTHERWISE SPECIFIED
FRACTIONAL ±.008 DECIMAL ±.002 ANGULAR ± 1°

NO	DATE	CHANGED
		[illegible] WAS [illegible]
	7-9-[illegible]	.43.125 WAS .25 [illegible]
		[illegible] WAS .315/.312 [illegible]



228

ORIGINAL USE WAS TO SUPPORT [illegible] WINDING SHAFT [illegible]

NOW USED FOR [illegible] LEVER

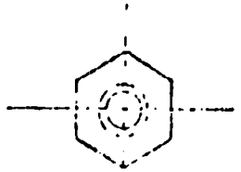
1-21[illegible]

DATE	DRAWN BY	MATERIAL		NAME	DRAWING NUMBER
[illegible]-5	JBC	BRASS	LEUPOLD & STEVENS INSTRUMENTS, INC. PORTLAND, OREGON	STANDARD CRANK SHAFT	1-[illegible]
SCALE	CHECKED	FINISH		FOR	

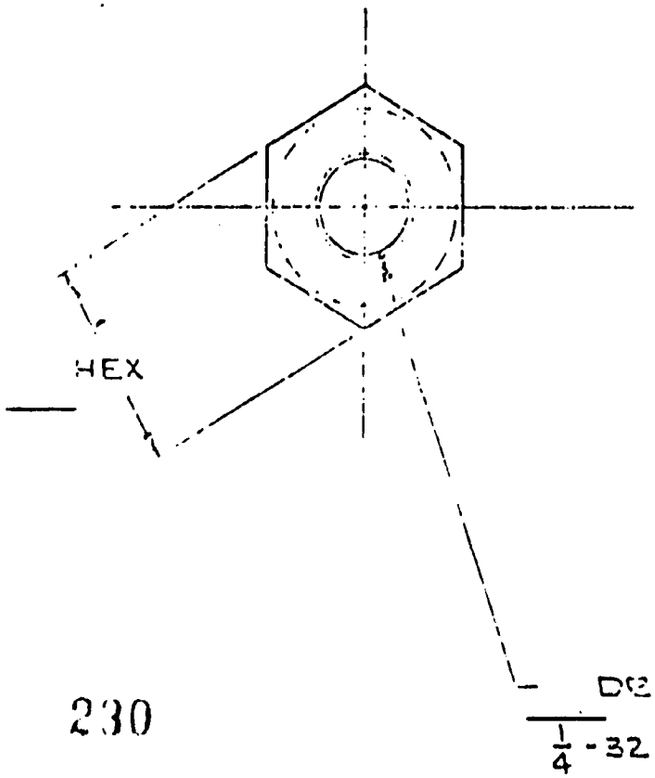
22

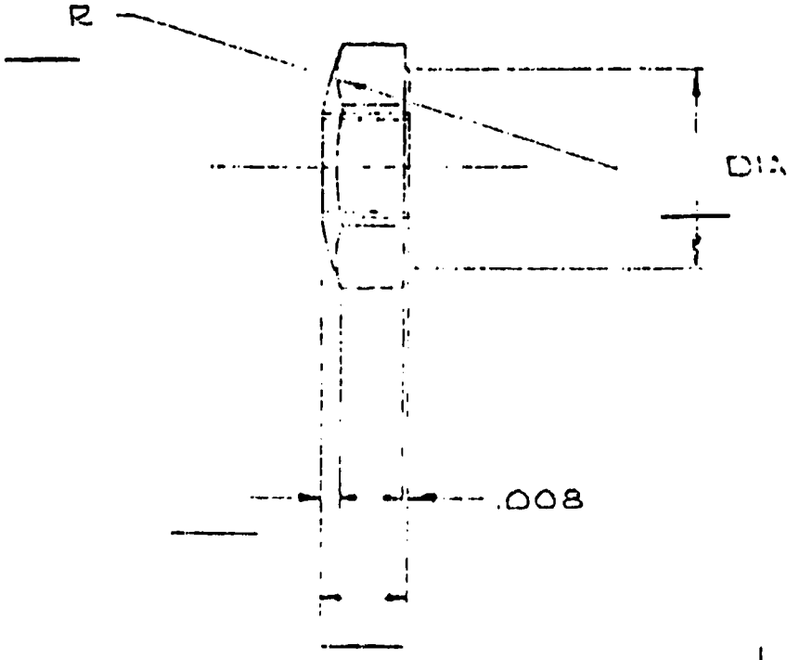
1-10074	LIMITS ON DIMENSIONS UNLESS OTHERWISE SPECIFIED FRACTIONAL ± .003 DECIMAL ± .002 ANGULAR ± 1/2°	LEUPOLD & STEVENS INSTRUMENTS, INC. PORTLAND, OREGON	REVISION NO. / DATE / DESCRIPTION	DRAWING NUMBER 1-10074
			14 / 1-17 / 1-10074 WAS A-61	
			*260 B 5-7-84 MADE INTO ACTIVE PART	

THIS DRAWING IS FOR
REFERENCE ONLY



ACTUAL SIZE





230

3-27720	1
3-27393	1
3-[illegible]	
3-25964	1

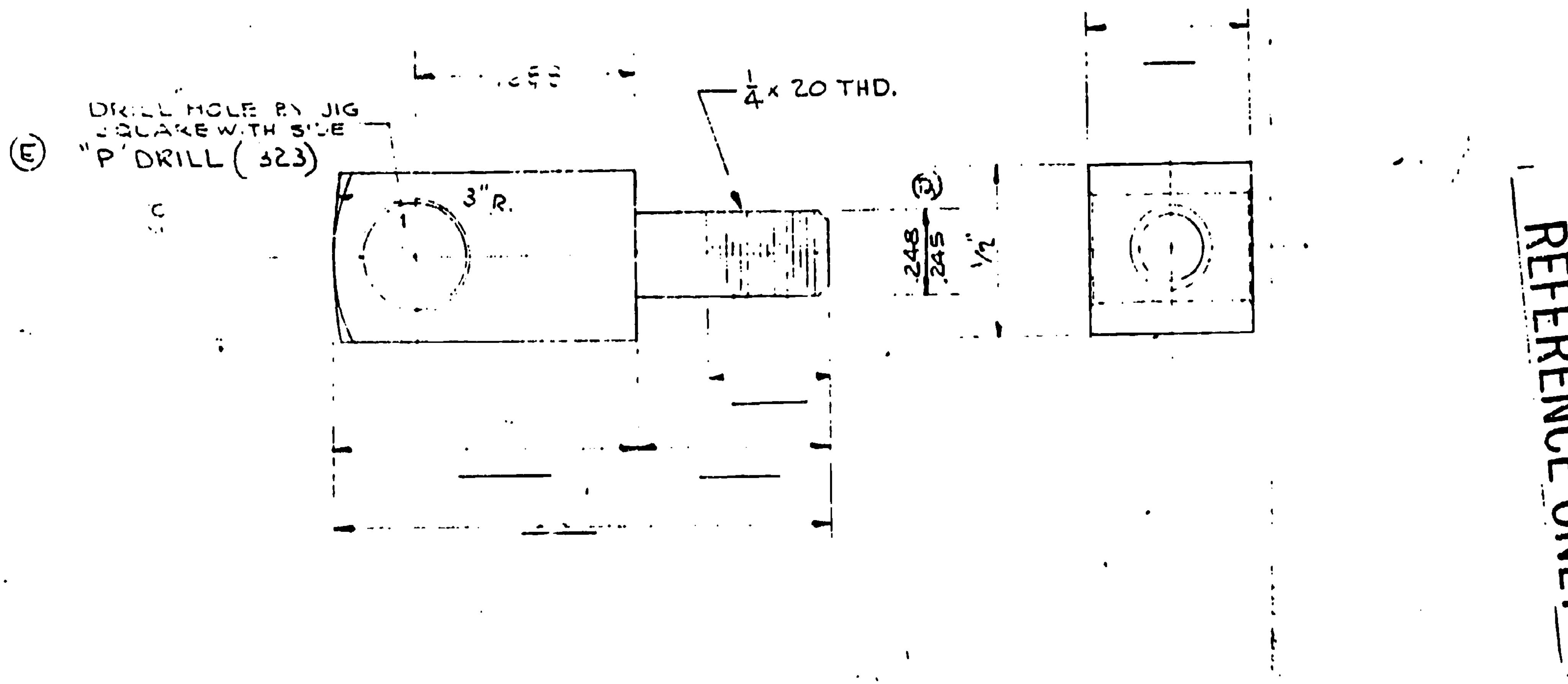
231

1-21008

DRAWING NUMBER 1-10020

LIMITS ON DIMENSIONS UNLESS OTHERWISE SPECIFIED
FRACTIONAL ±.008 DECIMAL ±.002 ANGULAR ± 1°

NO	DATE	CHANGED
A	[illegible]	[illegible]
B	[illegible]	[illegible]
C	3-12-57	.315/.312 WAS .315/.313 G.K.S.
D	7-9-64	.248/.245 WAS .250 HGL
E	2-10-70	"P" DRILL WAS .315/.312 BRAD
F	1-19-71	1-10020 WAS A-13 [illegible]



THIS DRAWING IS FOR REFERENCE ONLY

232

NOTE: ORIGINAL USE WAS TO SUPPORT ONE END OF WINDING SHAFT. REPLACED BY A-701 WHEN WINDING PAWL ADDED.

NOW USED FOR CRANKHOLDER ON A-35-20"

233

1-21242

DATE	DRAWN BY	MATERIAL		NAME	DRAWING NUMBER
7-7-50	JBC	BRASS	LEUPOLD & STEVENS INSTRUMENTS, INC.	STANDARD, CRANK SHAFT	1-10020
SCALE	CHECKED	FINISH NONE	PORTLAND, OREGON	FOR A-35	

Starrett®

DECIMAL EQUIVALENTS AND TAP DRILL SIZES

FRACTION OR DRILL SIZE	DECIMAL EQUIVALENT	TAP SIZE
NUMBER SIZE DRILLS 80	.0135	
79	.0145	
1/64	.0156	
78	.0160	
77	.0180	
76	.0200	
75	.0210	
74	.0225	
73	.0240	
72	.0250	
71	.0260	
70	.0280	
69	.0292	
68	.0310	
1/32	.0312	
67	.0320	
66	.0330	
65	.0350	
64	.0360	
63	.0370	
62	.0380	
61	.0390	
60	.0400	
59	.0410	
58	.0420	
57	.0430	
56	.0465	
3/64	.0469	0 - 80
55	.0520	
54	.0550	
53	.0595	1 - 64, 72
1/16	.0625	
52	.0635	
51	.0670	
50	.0700	2 - 56, 64
49	.0730	
48	.0760	
5/64	.0781	
47	.0785	3 - 48
46	.0810	
45	.0820	3 - 56
44	.0860	
43	.0890	4 - 40
42	.0935	4 - 48
3/32	.0938	
41	.0960	
40	.0980	

FRACTION OR DRILL SIZE	DECIMAL EQUIVALENT	TAP SIZE
39	.0995	
38	.1015	5 - 40
37	.1040	5 - 44
36	.1065	6 - 32
7/64	.1094	
35	.1100	
34	.1110	
33	.1130	6 - 40
32	.1160	
31	.1200	
1/8	.1250	
30	.1285	
29	.1360	8-32, 36
28	.1405	
9/64	.1406	
27	.1440	
26	.1470	
25	.1495	10 - 24
24	.1520	
23	.1540	
5/32	.1562	
22	.1570	
21	.1590	10 - 32
20	.1610	
19	.1660	
18	.1695	
11/64	.1719	
17	.1730	
16	.1770	12 - 24
15	.1800	
14	.1820	12 - 28
13	.1850	
3/16	.1875	
12	.1890	
11	.1910	
10	.1935	
9	.1960	
8	.1990	
7	.2010	1/4 - 20
13/64	.2031	
6	.2040	
5	.2055	
4	.2090	
3	.2130	1/4 - 28
7/32	.2188	
2	.2210	
LETTER SIZE DRILLS 1	.2280	
A	.2340	

Starrett®

DECIMAL EQUIVALENTS AND TAP DRILL SIZES

CONTINUED FROM REVERSE SIDE

FRACTION OR DRILL SIZE	DECIMAL EQUIVALENT	TAP SIZE
15/64	.2344	
LETTER SIZE DRILLS B	.2380	
C	.2420	
D	.2460	
1/4 E	.2500	
F	.2570	5/16 - 18
G	.2610	
17/64	.2656	
H	.2660	
I	.2720	5/16 - 24
J	.2770	
K	.2810	
9/32	.2812	
L	.2900	
M	.2950	
19/64	.2969	
N	.3020	
5/16 O	.3125	3/8 - 16
P	.3160	
21/64	.3230	
Q	.3281	
R	.3320	3/8 - 24
11/32	.3390	
S	.3438	
T	.3480	
23/64	.3580	
U	.3594	
3/8 V	.3680	7/16 - 14
W	.3750	
25/64	.3770	
X	.3860	
Y	.3906	7/16 - 20
13/32	.3970	
Z	.4040	
27/64	.4062	
7/16	.4130	
29/64	.4219	1/2 - 13
15/32	.4375	
31/64	.4531	1/2 - 20
1/2	.4688	
33/64	.4844	9/16 - 12
17/32	.5000	
35/64	.5156	9/16 - 18
9/16	.5312	5/8 - 11
37/64	.5469	
	.5625	5/8 - 18
	.5781	

FRACTION OR DRILL SIZE	DECIMAL EQUIVALENT	TAP SIZE
19/32	.5938	
39/64	.6094	
5/8	.6250	
41/64	.6406	
21/32	.6562	3/4 - 10
43/64	.6719	
11/16	.6875	3/4 - 16
45/64	.7031	
23/32	.7188	
47/64	.7344	
3/4	.7500	
49/64	.7656	7/8 - 9
25/32	.7812	
51/64	.7969	
13/16	.8125	7/8 - 14
53/64	.8281	
27/32	.8438	
55/64	.8594	
7/8	.8750	1 - 8
57/64	.8906	
29/32	.9062	
59/64	.9219	1 - 12
15/16	.9375	
61/64	.9531	
31/32	.9688	
63/64	.9844	1 1/8 - 7
1	1.0000	
1 3/64	1.0469	1 1/4 - 12
1 7/64	1.1094	1 1/4 - 7
1 1/8	1.1250	
1 11/64	1.1719	1 1/2 - 12
1 15/32	1.2188	1 3/8 - 6
1 1/4	1.2500	
1 19/64	1.2969	1 3/8 - 12
1 11/32	1.3438	1 1/2 - 6
1 3/8	1.3750	
1 27/64	1.4219	1 1/2 - 12
1 1/2	1.5000	

PIPE THREAD SIZES

THREAD	DRILL	THREAD	DRILL
1/8 - 27	R	1 1/2 - 11 1/2	1 47/64
1/4 - 18	7/16	2 - 11 1/2	2 7/32
3/8 - 18	37/64	2 1/2 - 8	2 5/8
1/2 - 14	23/32	3 - 8	3 1/4
3/4 - 14	59/64	3 1/2 - 8	3 3/4
1 - 11 1/2	1 5/32	4 - 8	4 1/4
1 1/4 - 11 1/2	1 1/2		

FRACTION POST TEST

Name_____ Date_____

1. Mary repaired 8 dirt rejects. The total scopes repaired that day was 145. What fraction of the scopes were dirt rejects?

_____

2. Todd made about 30 eye shells each hour for ten hours. The total number of eye shells manufactured that day was 500 . What fraction of the shells did Todd make?

_____

3. Joan inspected 20 crank shafts on Tuesday. Megan inspected 35. Bill inspected 15. What fraction of the total shafts inspected did Bill inspect?

_____

4. The total scopes repaired on Tuesday was 139. 14 of those were mechanical rejects and 12 were dirt rejects. What fraction of the total repaired were neither mechanical nor dirt rejects?

_____

5. Compare the following fractions using < , > , =.

a) 5 1/3 _____ 2 1/3 b) 6 3/7 _____ 6 8/21) 5 8/24 _____ 5 3/4

d) 1/2_____ 2/4 e) 1/5_____ 2/10 f) 3/8 _____1/2

10. Change the fractions and mixed numbers to decimals.

a) 7/8 = _____ b) 8/32 = _____ c) 7/50 = _____

d) 11 2/3 = _____ e) 5 1/9 = _____ f) 4 13/20 = _____

11. Change the fractions to decimals and solve.

a) 5/12 x 1/5 = b) 14/15 + 3/7 =

c) 9 3/4 ÷ 1 1/3 = d) 5 3/7 - 2 5/8 =

12. Find the lowest common denominator for each pair of fractions.

$\frac{3}{4}, \frac{5}{6}$ _____ $\frac{1}{5}, \frac{4}{15}$ _____ $\frac{1}{2}, \frac{3}{8}$ _____ $\frac{3}{4}, \frac{3}{5}$ _____

Comparing Fractions, Decimals, Percents

Objective: The student will change fractions to decimals, decimals to percents and be able to compute equal values of each.

1. Meaning of Percent

   - What percents mean

   - Showing percents

2. Comparing Fractions, Decimals, & Percents

   - Writing equal fractions, decimals, percents

   - Changing percents to decimals

   - Changing decimals to percents

   - Changing fractions to percents

3. Solving Percent Problems

   - Solving for the whole

   - Solving for the part

   - Solving for the percent

   - Deciding how to solve percent problems

MATH SKILLS PRETEST

Name_____ Date_____

1. Give the correct decimal for the following .

a) six tenths = _____ b) one and thirty-three hundredths=_____

2. Mary clocked in a total of 10 hours at work. If she spent 7.7 hours repairing scopes, how much time was left for other actitities? How much time is this in hours and minutes?

a) _____ b)_____

3. Below are sample measurements of five Object Shell & Tubes. Arrange in value from largest to smallest.

_____.9230 _____.9238 _____.9232 _____.9236 _____.9235

4. 125 maintubes were manufactured on one machine during day shift. A total of 250 maintubes were manufactured in three shifts. What fraction of the tubes were manufactured during day shift?

_____

5. Supply the missing number in the following.

$\frac{3}{4} = \frac{24}{\quad}$ $\frac{\quad}{8} = \frac{5}{40}$ $\frac{1}{9} = \frac{\quad}{54}$ $\frac{7}{\quad} = \frac{21}{30}$

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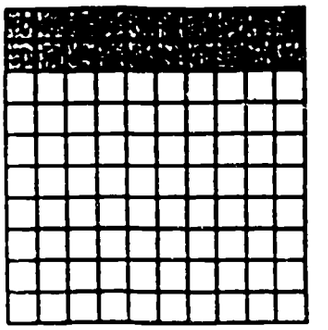
6. Find the lowest common denominator for each pair of fractions.

3/4, 5/6 = _____ 1/5, 4/15 =_____ 1/2, 3/8 =_____

7. What percent of the squares are darkened?_____



8. What percent of the squares are white?_____

9. What percent of the box has squares?_____

10. Change to decimals.

a) 25% = _____. b) 245% = _____ c) 1% = _____

11. Change to fractions.

a) 90% = _____ b) 68% = _____ c) 4% = _____

12. Change to percents.

a) 1= _____ b) 1.75= _____ c) .0073 = _____

13. Solve these percent problems.

a) 50% of 880 is what? _____

b) 80% of what is 24 ? _____

14. Megan found that 10% of the 139 scopes repaired were mechanical rejects. How many mechanical rejects were there? (Round off to the nearest whole number)

_____

FIGURING PERCENTS FROM GROSS WAGES

Name_____ Date_____

Answer the following by referring to the attached pay checks. Complete the exercise for one check at a time.

	I	II
1. What are the gross wages?	_____	_____
2. What are the net wages?	_____	_____
3. What percent of gross salary is net salary?	_____	_____
4. What percent of gross salary is each individual deduction?		
FICA	_____	_____
State	_____	_____
Federal	_____	_____
401K	_____	_____
Credit Union	_____	

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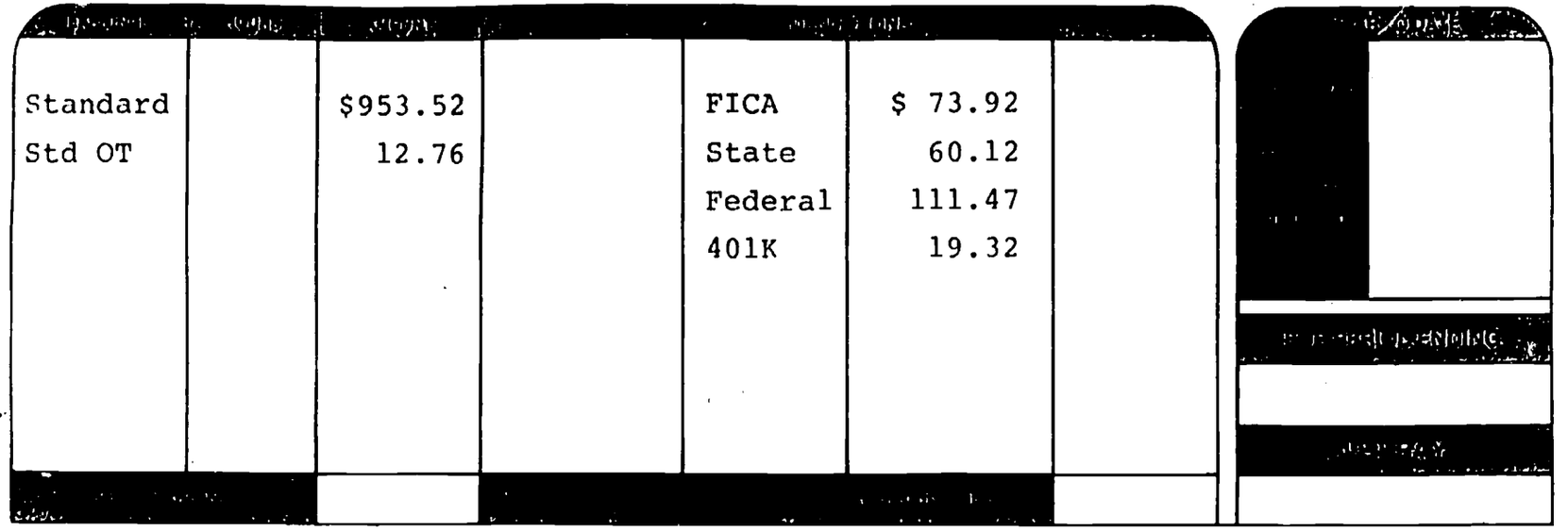
Company Paid Fringe Benefits		**I**	**II**
5. What percent of the gross is each benefit?			
Blue Cross	$88.	_____	_____
Workers' Comp.	77.	_____	_____
Tri Met	6.	_____	_____
FICA (Same amount as employee pays)		_____	_____
Federal Unemployment	7.	_____	_____
State Unemployment	23.	_____	_____
6. Total amount of benefits:		_____	_____
7. What percent of gross salary are company paid benefits?		_____	_____
8. What percent of the total benefits is each individual benefit?			
Blue Cross		_____	_____
Workers' Comp.		_____	_____
Tri Met		_____	_____
FICA		_____	_____
Federal Unemployment		_____	_____
State Unemployment		_____	_____



Standard		$953.52		FICA	$ 73.92	
Std OT		12.76		State	60.12	
				Federal	111.47	
				401K	19.32	

LEUPOLD & STEVENS, INC.
BEAVERTON, OREGON 97075-0688

NOT NEGOTIABLE

DETACH AND RETAIN THIS
PORTION FOR YOUR RECORDS

KEY BANK

KEY BANK of OREGON
SUNSET BANKING OFFICE
P.O. BOX 568
BEAVERTON, OR 97075

24-201
1230

LEUPOLD & STEVENS, INC.

600 N.W. MEADOW DRIVE
BEAVERTON, OREGON 97075-0688

PAY TO THE ORDER OF

NOBODY

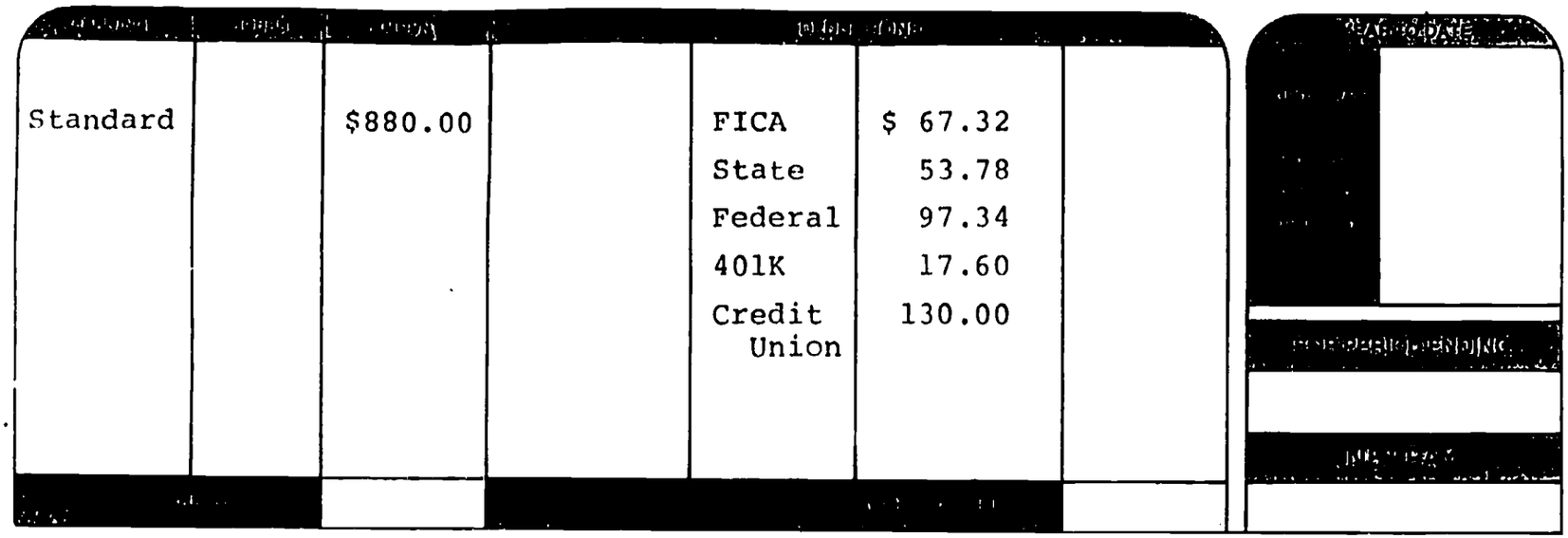
EXACTLY

LEUPOLD & STEVENS, INC.
PAYROLL ACCOUNT

VOID

NOT NEGOTIABLE

"056469" 1:123002011: 10 11213 4"



Standard		$880.00		FICA	$ 67.32	
				State	53.78	
				Federal	97.34	
				401K	17.60	
				Credit Union	130.00	

LEUPOLD & STEVENS, INC.
BEAVERTON, OREGON 97075-0688

NOT NEGOTIABLE

DETACH AND RETAIN THIS PORTION FOR YOUR RECORDS

KEY BANK

KEY BANK of OREGON
SUNSET BANKING OFFICE
P.O. BOX 568
BEAVERTON, OR 97075

24-201
1230

LEUPOLD & STEVENS, INC.

600 N.W. MEADOW DRIVE
BEAVERTON, OREGON 97075-0688

PAY TO THE ORDER OF

Nobody

VOID

EXACTLY

LEUPOLD & STEVENS, INC.
PAYROLL ACCOUNT

NOT NEGOTIABLE

"056469" :123002011: 10 11213 4"

Interpreting Scope Repairs

Name_____ Date_____

Work Week	Total Repaired	Scopes Repaired	Mechanical Rejects	Mechanical Rejects %	Dirt Rejects	Dirt Rejects %
10	305	____	17	____	____	6%
11	229	207	____	3%	16	____
12	____	173	9	____	6	____
13	324	____	____	3%	____	7%
14	____	197	22	____	____	8%
15	308	295	____	0%	13	____
16	137	____	4	____	11	____
17	____	186	____	2%	____	4%

1. What is the total number of scopes repaired? _____

2. What is the total number of mechanical rejects repaired? _____

3. What is the total number of dirt rejects repaired over the 8 week period? _____

4. What percent of the grand total is the total number of mechanical rejects? ____

5. What percent of the grand total is the total number of dirt rejects? _____

6. The number of scopes repaired is what percent of the total repaired? _____

7. Why do you think the company keeps track of these statistics? _____

Skill Builders MT 3/19/91

Router and Scrap Ticket Exercises

Name_____ Date_____ _____

Use Router # H1697 for these problems.

The router for order #H1697 (F.O. NO.) shows that 400 parts are to be completed out of a total order quantity of 1200.

1. What is the part number (P/N)? _____

2. What is the description? _____

3. How many operations with time against them are there? _____

4. If the last operation was 070 how many operations were completed? _____

5. What is the ratio of operations completed to total operations? _____

6. What is the percent of operations completed? _____

7. How many hours and minutes were spent on the eyepiece at 070? _____

8. How long (hours and minutes) should it take to complete 400 eyepieces? _____

9. If there were 20 rejects, what is the ratio of units rejected (using the 400 quantity)?

_____

10. What is the percent of units rejected? _____

11. What would the rejects cost if the actual cost is $4.52 and all the operations were completed? Total cost: _____

12. The operations have only been completed to 070 so the total cost of the eyepieces cannot be charged to them. Use the percent of operations completed (#6) and multiply by the total cost of the rejects to find the actual value of these rejects that are only partially completed. $ Value _____

13. Complete line one on the scrap ticket using the router for order #H1697 and the figures you found above.

Use Router #H1987 for these problems.

The router for order #H1987 (F.O. NO.) shows that 497 parts are to be completed out of a total order quantity of 500.

1. What is the part number (P/N)? _____ 2. What is the description? _____

3. How many operations with time against them are there? _____

4. If the last operation was 020 how many operations were completed? _____

5. What is the ratio of operations completed to total operations? _____

6. What is the percent of operations completed? _____

7. How many hours and minutes were spent on the part at operation 020? _____

8. How long (hours and minutes) should it take to complete 497 parts? _____

9. If there were 5 rejects, what is the ratio of units rejected (using the 497 quantity)?

_____

10. What is the percent of units rejected? _____

11. What would the rejects cost if the actual cost is $7.32 and all the operations were completed? Total cost: _____

12. The operations have only been completed to 020 so the total cost of the parts cannot be charged to them. Use the percent of operations completed (#6) and multiply by the total cost of the rejects to find the actual value of these rejects that are only partially completed. $ Value _____

13. Complete the second lines on the attached scrap ticket using the router for order #H1987 and the figures you found above.

14. Did you need to complete a scrap ticket for these rejects? Why or why not?

_____

Use the router for Order #J2942 for these questions.

1. How many operations are there with time against them? _____

2. What it the total order quantity? _____

3. How many hours should it take to complete this order?_____

4. How much setup time is there? _____

5. If the piece is completed to operation 030, what is the process time so far?_____

6. There are 4 rejects, what percent of the total screws have passed inspection this far? _____

7. These rejects cost $2. 23 each. If 5 operations have time and 3 are completed, what is the value of the rejects? _____

8. If you need to, complete the third line of the scrap ticket for Part No. 43964.

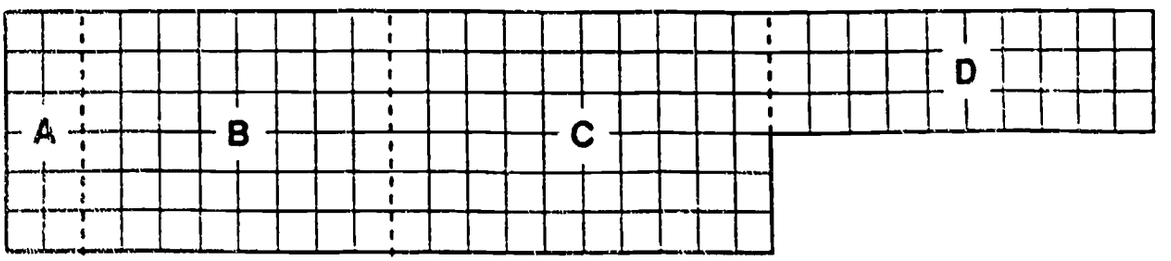
Use the Route Sheet for order Number H1700 to answer this problem.

1. We have a major problem! There were 57 rejects after operation 4! If each one costs $1.15, does a scrap ticket need to be made up? What is the loss? Complete the scrap ticket line #4 if your loss is over $15.00.

COMPARING FRACTIONS, DECIMALS, AND PERCENTS POST TEST

Name_____ Date _____

1. For each region below, find and record what percent the area of each subregion is of the area of the entire region.



A = _____ B = _____ C = _____ D = _____

2. Shade in 25% of the entire region in the above rectangle.

3. Complete the following table.

	Percent	Fraction	Decimal
a)	_____	_____	.2
b)	30%	_____	_____
c)	_____	_____	.35
d)	_____	13/20	_____
e)	62.5%	_____	_____

4. Carlos worked Monday through Friday. He completed 1/8 of the factory order quantity each day. What percent of the job was left to finish?

---

5. A shipment of lenses cost $16,967.90. The cost of part # 16610 was $632.8 What percent of the total was part # 16610?

---

6. Freight and duty of each part is figured by multiplying the total freight and duty amount by the percent (#5). Freight and duty cost $1200. How much freight was paid for part # 16610?

---

7. If 7% of 229 scopes were dirt rejects, how many were dirt rejects?

---

8. 15% of the repaired scopes were mechanical rejects. How many scopes were repaired if there were 22 mechanical rejects?

---

9. 324 scopes were repaired. 3% were mechanical rejects, 7% were dirt rejects. How many scopes were neither mechanical nor dirt rejects?

---

10. Judy repaired 35 scopes. This is what percent of the total of 256 scopes repaired?

---

11. Maria repaired 12 dirt rejects which was 2% of the whole and Ida repaired 9 mechanical rejects which was 1.5% of the whole. How many of the repaired scopes were neither dirt nor mechanical rejects?

---

12. Write the equal decimal for the following fractions.

a) 35/100 = _____ b) 7/10 _____ c) 75/1000 = _____

13. Circle the decimals that are equal.

a) .050 .00500 .05 0.5 b) 45.65 4.565 0.04565 45.65000

14. Arrange the decimals from smallest to largest.

a) .652 0.0652 6.52 .00652 b) .056 .005 0.0005 .560

15. Round each decimal below to the nearest ten-thousandth

a) .65843 = _____ b) .66666 = _____

16. Compare the following fractions using <, >, or =.

a) 2 3/8 _____2 5/7 b) 17/36 _____ 6/9 c) 2/3 _____18/27

RIGHT TRIANGLE MATH

Objective: Using the right triangle formula charts and a scientific calculator, the student will calculate unknown sides and angles.

1. Right Triangles

   - Definition of right triangle

   - Degrees in right triangles

2. Pythagorean Theorem

   - Square and square root symbols

   - Finding square and square root on a calculator

   -Finding diameter of a bolt circle

   - Formula for Pythagorean theorem

3. Converting degrees and minutes to decimal degrees

   - Converting applications

   - Converting using the calculator

4. Using the formula chart to solve for right triangles

   - Solving the right triangle for sides only

   - finding degrees in a right triangle

RIGHT TRIANGLE PRE-TEST

Name_____ Date_____

1. How many degrees are in the three angles of a right triangle? _____

Solve the following.

2. $40° 50'$
$-20° 30'$

3. $\sqrt{49} =$ _____

4. $25^2 =$_____

5. Convert 25°35' to decimal degrees. _____

6. If the sides of a right triangle measure .300 and .400. What is the length of the hypotenuse? _____

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Converting Degrees and Minutes to Decimal Degrees

When using the calculator, it is often easier to work with degrees if the minutes are changed to decimals. This is easily done by dividing the number of minutes by 60. Since there are 60 minutes in one degree, 60 is the denominator and the number of minutes is the numerator.

Example: Change 35°30' to decimal degrees. 30/60 = .5
35°30' =35.5°

Conversely, to change decimal degrees to degrees and minutes, multiply by 60.

Example: Convert 45.20° to decimals and minutes. .20 X 60 = 12
45.20° = 45° 12'

Convert the following degrees and minutes to decimal degrees.

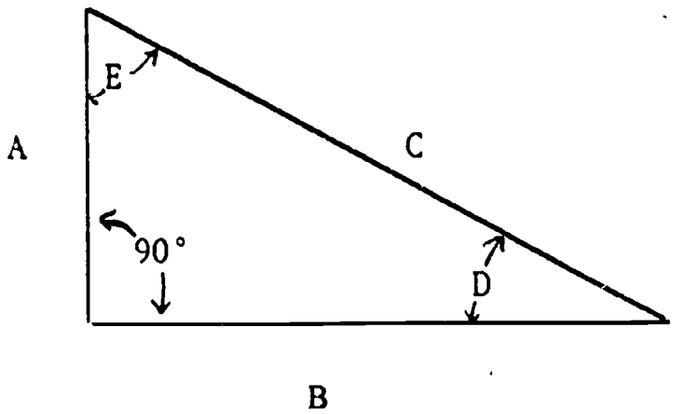
1. 75° 15' = _____
2. 105° 35' = _____
3. 90° 23' = _____
4. 320° 54' = _____

Change the decimal degrees to degrees and minutes.

1. 195.33° = _____
2. 26.9° = _____
3. 45.75° = _____
4. 57.5° = _____

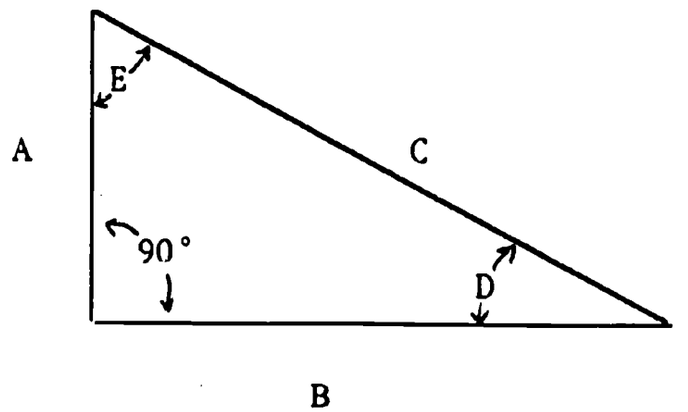
Skill Builders MT 6/5/91

RIGHT TRIANGLES



TO FIND	KNOWN PARTS	FORMULA	CALCULATOR APPLICATION (: = "ENTER") Texas Instrument - 34
A	C & D	C x SIN D = A	: C : x : D : SIN : =
A	B & D	B x TAN D = A	: B : x : D : TAN : =
A	C & B	$\sqrt{C^2 - B^2} = A$	: C : X^2 : — : B : X^2 : = : 2nd : $\sqrt{X}$
B	C & D	C x COS D = B	: C : x : D : COS : =
B	A & D	$\frac{A}{\text{TAN D}} = B$	: A : ÷ : D : TAN : =
B	C & A	$\sqrt{C^2 - A^2} = B$	: C : X^2 : — : A : X^2 : = : 2nd : $\sqrt{X}$
C	A & D	$\frac{A}{\text{SIN D}} = C$	: A : ÷ : D : SIN : =
C	B & D	$\frac{B}{\text{COS D}} = C$	: B : ÷ : D : COS : =
C	A & B	$\sqrt{A^2 + B^2} = C$	: A : X^2 : + : B : X^2 : = : 2nd : $\sqrt{X}$
D	A & C	$\frac{A}{C} = \text{SIN D}$	: A : ÷ : C : = : 2nd : SIN
D	B & C	$\frac{B}{C} = \text{COS D}$	: B : ÷ : C : = : 2nd : COS
D	A & B	$\frac{A}{B} = \text{TAN D}$	: A : ÷ : B : = : 2nd : TAN

RIGHT TRIANGLES



TO FIND	KNOWN PARTS	FORMULA	CALCULATOR APPLICATION (: = "ENTER") Casio
A	C & D	C x SIN D = A	: C : x : D : SIN : =
A	B & D	B x TAN D = A	: B : x : D : TAN : =
A	C & B	$\sqrt{C^2 - B^2} = A$	: C : INV : X^2 : — : B : INV : X^2 : = : $\sqrt{}$
B	C & D	C x COS D = B	: C : x : D : COS : =
B	A & D	$\frac{A}{TAN\ D} = B$	: A : ÷ : D : TAN : =
B	C & A	$\sqrt{C^2 - A^2} = B$	: C : INV : X^2 : — : A : INV : X^2 : = : $\sqrt{}$
C	A & D	$\frac{A}{SIN\ D} = C$	: A : ÷ : D : SIN : =
C	B & D	$\frac{B}{COS\ D} = C$	: B : ÷ : D : COS : =
C	A & B	$\sqrt{A^2 + B^2} = C$	: A : INV : X^2 : + : B : INV : X^2 : = : $\sqrt{}$
D	A & C	$\frac{A}{C} = SIN\ D$	: A : ÷ : C : = : INV : SIN
D	B & C	$\frac{B}{C} = COS\ D$	: B : ÷ : C : = : INV : COS
D	A & B	$\frac{A}{B} = TAN\ D$	: A : ÷ : B : = : INV : TAN

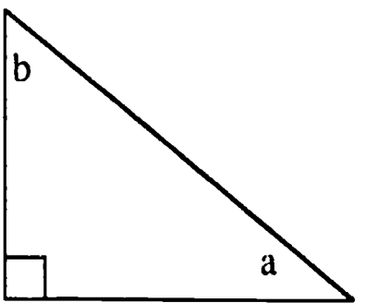
RIGHT TRIANGLE POST TEST

Name _____ Date_____

1. Define right triangle. _____

_____

2. Label each side of the right triangle with the correct word: base, height , hypotenuse, legs.



3. In the above triangle, if angle a is 40 °, 20' , how many degrees is angle b?

_____

4. Solve each of the following without using your calculator.

a) $\sqrt{36}$ = _____ b) 7^2 =_____

5. Use your calculator to solve the following.

a) $\sqrt{1225}$ = _____ b) $\sqrt{289}$ = _____

c) 14^2 = _____ d) 135^2= _____

6. Convert the following degrees and minutes to decimal degrees.

28° 30" = _____ 45° 20" = _____ 85°45" = _____

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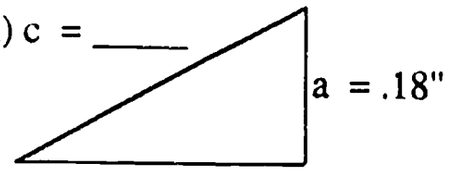
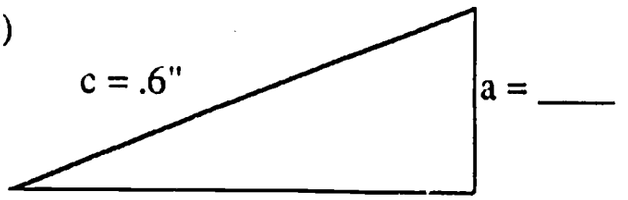
7. Use the attached formula sheet to solve for the following triangles.

a) c = _____



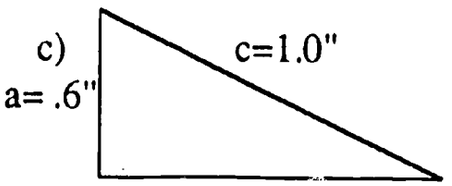
b = .24"

b)

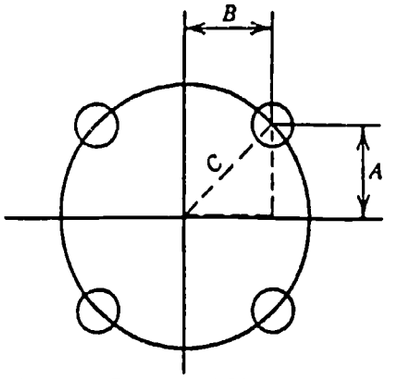


b = .45"

c)



b= _____



8. Determine the diameter of the bolt circle if A = .120", B = .160". Diameter = _____

9. Use the attached formula sheet to solve for each set of values.

a) Find A. C = 5, D = 36.87°

A = _____

b) Find A. B = 4, D = 36.87°

A = _____

c) Find B. C = 5", D = 11.5°

B = _____

d) Find B. A = 1", D = 11.5°

B = _____

e) Find C. A = 11.4", D = 70°40'

C = _____

f) Find C. B = 4, D = 70°40'

C = _____

10. a) Find D. A = .8", B = .15"

D= _____

b) Find D. B = .15", c = .17"

D = _____

MEASUREMENT/ AVERAGES/ RANGES

The student will measure five parts, compare measurements with the given mean, compute and record averages and ranges on the Variable Control chart.

1. Graphing averages and ranges on the Variable Control Chart

    - Finding averages

    - Determining ranges

2. Measuring parts accurately

    - Reading a caliper/ micrometer

    - Measuring parts using a caliper

3. Recording and Graphing measurements on the Variable Control Chart

    - Recording measured parts

    - Finding averages and ranges of the parts

    - Graphing averages and ranges

MEASUREMENT PRETEST

Record the totals, averages and ranges in the spaces provided.

1. Wages of Stevens Employees

Adams	$	197.60
Brown		194.30
Clark		205.65
Duncan		202.25
Hall		181.30
Smith		179.66
Wilson		128.75
Young		140.40

TOTAL _____

AVERAGE _____

RANGE _____

2. Sample Measurements of Part # 45826 - A

1.	.9240 inches
2.	.9236
3.	.9231
4.	.9237
5.	.9241

TOTAL _____

AVERAGE _____

RANGE _____

FINDING THE AVERAGE

The average of a set of numbers is found by adding the numbers, and then dividing this sum by the number of numbers in the set. The average of 37 and 49 is found as follows:

$37 + 49 = 86$ and $86 \div 2 = 43$. So the average is 43.

Example: Find the average of 45, 53, & 34.

Solution: $45 + 53 + 34 = 132$. There are 3 numbers so $132 \div 3 = 44$.
The average is 44.

Solve the following problems:

1. Find the average of the numbers 103, 113, 97,99.

2. A basketball team had scores of 74, 83, 91, 85, 91, 76, 70, 83, 102, & 95 in ten games. What was their average score per game?

3. Jim's income for each of six months was $1,048, $991, $1,150, $975, $1,145, and $1,225. Find the average monthly income.

4. The average of 3 scores was 81. If two of the scores were 75 and 80, what was the third score?

5. For 3 months, Eileen's deposits and withdrawals were as follows:

	Deposit	Withdrawals
January	$ 425	$ 375
February	430	383
March	396	370

What was the average monthly difference between deposits and withdrawals?

Note: When finding the average of 5 numbers, multiplying the total by .2 will give the solution. Example: 4.6194 ÷ 5 = .9239 or 4.6194 X .2 = .9239. From our study of fraction / decimal equals we know that 1/5 = .20. The above example is the same as 4.6194 X 1/5 .

FINDING RANGE

Sometimes the range of a set of numbers needs to be found. To find range subtract the lowest number in the set from the highest number. The range of 37 and 49 is found as follows:

49 - 37 = 12. The range of the two numbers is 12.

Example: Find the range of 45, 53, & 34.

Solution: The largest number is 53 and the smallest is 34 so
53 - 34 = 19
The three numbers have a range of 19.

Use the problems on the average sheet to compute the ranges for each of the groups of numbers.

1._____ 2._____ 3._____ 4._____ 5._____

MEASUREMENT POST TEST

Name_____ Date_____

Use the blueprint to complete the following.

1. Part name. _____
2. Part number. _____
3. Specification limits._____

Measure five pieces.

4. On the Variable Control Chart record each measurement.
5. Record each sum, their average, & range where indicated on the chart.
6. Complete the graph showing both the average & range.

METRIC PRE-TEST

Use the Conversion Charts to determine the following answers.

1. Change 3.5 lb. to kilograms. _____

2. What is your weight in kilograms? _____

3. How many millimeters are in one inch? _____

4. How many inches are in one millimeter? _____

5. Find the difference in millimeters between the diameters at the ends of a tapered piece which are 1 1/4" and 1 1/8" respectively. _____ _____

6. What is the weight in grams of 20 eyepieces if each eyepiece weighs 1.1 oz? _____

7. A 1.2 mm cut on a piece of steel 1.27 cm is taken. What is the remaining thickness? _____

8. The following pieces were cut from several lengths of round brass rod: 5 pieces 30 cm. long and 4 pieces 42.5cm long. If each rod is 12ft. long, how many rods were used?_____

METRIC CONVERSIONS POST TEST

NAME_____ DATE_____

1. Match the metric unit to a familiar amount.

100 Kilometers	_____	A. about a quart
1 liter	_____	B. about the weight of a new pencil
1 meter	_____	C. about 60 miles
5 grams	_____	D. about a teaspoon
5 milliliters	_____	E. about a yard

2. Decide what kind of measurement is being used. Then write the measurement in the correct box.

grams	gallons	inches	centimeters	millimeters
pounds	quarts	meters	liters	kilograms

Length	Weight	Volume

Skill Builders MT 4/18/91

3. Convert the measurements.

How many pounds are in 55 grams? _____

7 2/3 yards are how many meters? _____

3.25gallons are how many liters? _____

55" are how many centimeters? _____

4. Write the following lengths as meters.

5 dekameters _____ 276 millimeters _____

.05 kilometers _____ 4.1 kilometers _____

5. Write the following weights as grams.

8.7 centigrams _____ .09 kilograms _____

39.2 milligrams _____ 1.3 kilograms _____

6. Convert each measurement into the other units across the line.

Kilo	Base	Centi	Milli
37km	_____m	_____cm	_____mm
_____kg	142 g		_____mg
_____kl	271		_____ml

Leupold & Stevens, Inc.

Final Report

Submitted by Marjorie A. Taylor
for Portland Community College
March 23, 1992

Leupold & Stevens, Inc

Contents

- Final Report
- Registrations
- Questionnaires
- Attendance Sheets
- New Materials
- Student Records
- Learner Evaluations
- Supervisor Evaluations

LEUPOLD & STEVENS, INC.

FINAL REPORT

I returned to Leupold & Stevens, Inc. for an additional math skills class in January 1992. I would like to evaluate this last instruction period based on some of the recommendations and concerns that were voiced in the previous report. First the basic content of the class will be reviewed; then the students who participated will be mentioned; and finally some concluding observations about the experience.

Content of 1992 classes:

In the previous report I felt that my content was too broad, first affecting the length of classes and then affecting the speed at which the classes needed to be conducted. This time four units were introduced: Calculator Use, Critical Thinking, Decimals & Percents. I felt the calculator use and story problem classes were important lead-ins for decimals and percents. Percents was the area most of the students needed experience in, and while more time should have been spent on percents, the three previous units were considered important preliminaries to percents. I skipped fractions this time and it didn't seem to affect the outcome, although it may have affected the final grades on the percent section. They were not as high as I would have liked.

Participants:

Most of the students who participated were from the same area of manufacturing, however they had at least two different supervisors which caused a problem with a worksheet I tried to develop on percents. The supervisors used two different ways to find scrap loss and I tried to teach both much to the dismay of some of the students. On hindsight I did a poor job of introducing the topic and explaining that both ways produce the same answer.

Some of the students only stayed for half the class time and found it difficult to keep up with the assignments as well as missing explanations on areas of concern. The company did pay for half of the class time and I think it improved the participation, but as before there was any number of "genuine" excuses for missing class. All in all attendance was improved over last year.

Several of the students were repeats from my previous classes. It was encouraging to see how much they remembered from last year and where they advanced to this year. Some of these were the most frustrated students last year who felt that I went too fast. With the repetition they not only understood it the second or third time around, but they were able to move to new areas. This was the most encouraging aspect of the program: these little bits of success that give the students confidence to keep at it and succeed.

Concluding Observations and Recommendations:

Again Leupold & Stevens was the most cooperative and enjoyable of companies. Anthia Swanson is to be commended on again giving me free hand to run around the company. She also arranged the boardroom for classes, and sign-up sheets for classes. Carol Van Cleave, a lead person for most of my students, was invaluable in giving me feedback and checking my worksheets for accuracy. She was also available to help the students with all of their homework questions. As an incentive for the workers to keep up their math skills I left several basic math books with her to make available to her people. She also has one or two people who are hesitant to come to classes and the books and Carol's attention may give them confidence to tackle math and eventually attend classes.

This group of students is ready for another class on just percents and I almost wish I had concentrated on just percents. Yet I could see the improvement in the students from last year and the review may have been the key they needed to open up to percents this time around.

Blueprint Math Applications

Note: These questions are for the purposes of the grant that sponsors this program. Signing your name is optional. These comments are for my records only and will not be shown to any employees of Leupold & Stevens. Thank you.

Name_____

Phone #_____

Job Title Parts Finish Helper Length of time at Leupold & Stevens 19 yr

Single Head of Household: yes X no____

1. How do you use math in your present job?

just for counting parts + making out time cards

2. What are your most important math needs?

Decimals + Percent

3. How will improving your math skills improve your job performance?

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

possible -

5. What is most important for you to accomplish by taking these math classes?

Being able to retain it

Skillbuilders MT 2/8/91

Blueprint Math Applications

Note: These questions are for the purposes of the grant that sponsors this program. Signing your name is optional. These comments are for my records only and will not be shown to any employees of Leupold & Stevens. Thank you.

Name_____

Phone #_____

Job Title Lead Person Length of time at Leupold & Stevens 19

Single Head of Household: yes_____ no X

1. How do you use math in your present job?

Add Subtract, Multiply, Percentages Decimals
Measuring parts, Time card, Scrap Tickets

2. What are your most important math needs?

Percentages

3. How will improving your math skills improve your job performance?

how to Figure out Scrap tickets better

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

no

5. What is most important for you to accomplish by taking these math classes?

Basic Knowledge for myself

Blueprint Math Applications

Note: These questions are for the purposes of the grant that sponsors this program. Signing your name is optional. These comments are for my records only and will not be shown to any employees of Leupold & Stevens. Thank you.

Name _____

Phone #_____

Job Title Vess A Insp Length of time at Leupold & Stevens 16 years

Single Head of Household: yes_____ no X

1. How do you use math in your present job?

measuring parts, doing reports

2. What are your most important math needs?

percents

3. How will improving your math skills improve your job performance?

Be more accurate

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

Math is important in all Insp. jobs

5. What is most important for you to accomplish by taking these math classes?

To be more confident

Blueprint Math Applications

Note: These questions are for the purposes of the grant that sponsors this program. Signing your name is optional. These comments are for my records only and will not be shown to any employees of Leupold & Stevens. Thank you.

Name___ _____

Phone #_ _____

Job Title Class A Machinest Length of time at Leupold & Stevens 18yr 8½ mo

Single Head of Household: yes_____ no✓

1. How do you use math in your present job?

Checking Parts - Read Blue Prints

2. What are your most important math needs?

Brush upon All Plus using the Calculator

3. How will improving your math skills improve your job performance?

Working out Prob. Faster

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

NO

5. What is most important for you to accomplish by taking these math classes?

Just To brush up

Blueprint Math Applications

Note: These questions are for the purposes of the grant that sponsors this program. Signing your name is optional. These comments are for my records only and will not be shown to any employees of Leupold & Stevens. Thank you

Name_____ _____

Phone #___ _____

Job Title Machine Operator Length of time at Leupold & Stevens 9 mos.

Single Head of Household: yes_____ no ✓

1. How do you use math in your present job?

Add, Mutiply and fractions

2. What are your most important math needs?

Personal Finances

3. How will improving your math skills improve your job performance?

Feeds + Speeds rate leads to better performance

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

Machinist

5. What is most important for you to accomplish by taking these math classes?

MORE Confidence,

Blueprint Math Applications

Note: These questions are for the purposes of the grant that sponsors this program. Signing your name is optional. These comments are for my records only and will not be shown to any employees of Leupold & Stevens. Thank you.

Name_____ _____

Phone #_____

Job Title machine oper Length of time at Leupold & Stevens 12 1/2 years

Single Head of Household: yes_____ no ✓

1. How do you use math in your present job?

YES

2. What are your most important math needs?

add + subtraction

3. How will improving your math skills improve your job performance?

4. Will improving your math skills help your chances of moving to another job position? What position do you hope to obtain?

5. What is most important for you to accomplish by taking these math classes?

review

MATH SKILLS ATTENDANCE SHEET

NAME_____ ENTRY DATE_____

DATE		Attendance
Jan. 14, 1992	1. Introductory Class/ Overview of Classes	
Jan. 16, 1992	2. Math Review	
Jan. 21, 1992	3. . Using a Calculator	
Jan. 23, 1992	4. Critical Thinking	
Jan. 28, 1992	5. Story Problems	
Jan. 30, 1992	6. Story Problems	
Feb. 4, 1992	7. Introduction to Decimals	
Feb. 6, 1992	8. Reading and Comparing Decimal Values	
Feb. 11, 1992	9. Decimal Review / Post Test	
Feb. 13, 1992	10. Meaning of Percent	
Feb. 18, 1992	11. Comparing Decimals, Fractions, Percents	
Feb. 20, 1992	12. Solving Percent Problems	
Feb. 25, 1992	13. Solving More Percent Problems	
Feb. 27, 1992	14. Post Test for All Components	

Skill Builders MT 5/14/91

EXIT DATE_____

Router and Scrap Ticket Exercises

Name_____ Date_____

Use Router # H1697 for these problems.

The router for order #H1697 (F.O. NO.) shows that 400 parts are to be completed out of a total order quantity of 1200.

1. What is the part number (P/N)? _____

2. What is the description? _____

3. How many operations with time against them are there? _____

4. If the last operation was 070 how many operations were completed? _____

5. What is the ratio of operations completed to total operations? _____

6. What is the percent of operations completed? _____

7. How many hours and minutes were spent on the eyepiece at 070? _____

8. How long (hours and minutes) should it take to complete 400 eyepieces? _____

9. If there were 20 rejects, what is the ratio of units rejected (using the 400 quantity)?

   _____

10. What is the percent of units rejected? _____

11. What would the rejects cost if the actual cost is $4.52 and all the operations were completed? Total cost: _____

12. The operations have only been completed to 070 so the total cost of the eyepieces cannot be charged to them. Use the percent of operations completed (#6) and multiply by the total cost of the rejects to find the actual value of these rejects that are only partially completed. $ Value _____

13. Complete line one on the scrap ticket using the router for order #H1697 and the figures you found above.

Use Router #H1987 for these problems.

The router for order #H1987 (F.O. NO.) shows that 497 parts are to be completed out of a total order quantity of 500.

1. What is the part number (P/N)? _____ 2. What is the description? _____

3. How many operations with time against them are there? _____

4. If the last operation was 020 how many operations were completed? _____

5. What is the ratio of operations completed to total operations? _____

6. What is the percent of operations completed? _____

7. How many hours and minutes were spent on the part at operation 020? _____

8. How long (hours and minutes) should it take to complete 497 parts? _____

9. If there were 5 rejects, what is the ratio of units rejected (using the 497 quantity)? _____

10. What is the percent of units rejected? _____

11. What would the rejects cost if the actual cost is $7.32 and all the operations were completed? Total cost: _____

12. The operations have only been completed to 020 so the total cost of the parts cannot be charged to them. Use the percent of operations completed (#6) and multiply by the total cost of the rejects to find the actual value of these rejects that are only partially completed. $ Value _____

13. Complete the second lines on the attached scrap ticket using the router for order #H1987 and the figures you found above.

14. Did you need to complete a scrap ticket for these rejects? Why or why not?

_____

Use the router for Order #J2942 for these questions.

1. How many operations are there with time against them? _____

2. What it the total order quantity? _____

3. How many hours should it take to complete this order?_____

4. How much setup time is there? _____

5. If the piece is completed to operation 030, what is the process time so far?_____

6. There are 4 rejects, what percent of the total screws have passed inspection this far? _____

7. These rejects cost $2. 23 each. If 5 operations have time and 3 are completed, what is the value of the rejects? _____

8. If you need to, complete the third line of the scrap ticket for Part No. 43964.

Use the Route Sheet for order Number H1700 to answer this problem.

1. We have a major problem! There were 57 rejects after operation 4! If each one costs $1.15, does a scrap ticket need to be made up? What is the loss? Complete the scrap ticket line #4 if your loss is over $15.00.

Math Skills Class

Unit Records

Student	Unit 1		Unit 2		Unit 3		Unit 4	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
	96%	81%	97%	85%	44%			
	75%	81%		80%				87%
	100%	100%	100%	60%				
L. School	6%	88%	97%	68%	72%	82%	40%	40%
	62%	100%	00%	80%	84%	88%	22%	91%
	100%	100%	100%	75%	26%	62%		
	88%	100%	97%	90%	74%	92%	66%	90%
	50%	85%	100%	40%	0	14%		

Skill Builders: MT 3/92

Leupold & Stevens, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1.	This class has been					
very interesting	5	4	3	2	1	very boring
2.	This class was					
very hard	5	4	3	2	1	very easy
3.	On the job this class helped me					
to do more accurate work	5	4	3	2	1	not at all
4.	The instructor was					
interesting	5	4	3	2	1	boring
5.	I understood what I was supposed to learn					
most of the time	5	4	3	2	1	rarely
6.	The materials were directly related to the objective					
always	5	4	3	2	1	r .y
7.	Sufficient practice exercises were included					
too many	5	4	3	2	1	too few
8.	I received sufficient feedback on my practice exercises					
always	5	4	3	2	1	rarely
9.	The tests measured my performance on the objectives					
always	5	4	3	2	1	never

Skill Builders MT Rev 6/13/91

10. I received sufficient feedback on my test results.

always	5	4	3	2	1	never

11. After being in this class, I would

like to have more training like this	5	4	3	2	1	no more training like this

13. What can you do now that you could not do before taking this class?

14. Has this course helped you meet or work toward any of your personal goals? If so, how?

15. Would you recommend this course to a co-worker? Why or why not?

16. What did you like best about this course? Least?

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY March 3, 1992.

THANK YOU FOR YOUR INPUT!

Leupold & Stevens, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1.	This class has been					
very interesting	5	(4)	3	2	1	very boring
2.	This class was					
very hard	5	4	(3)	2	1	very easy
3.	On the job this class helped me					
to do more accurate work	5	4	3	(2)	1	not at all
4.	The instructor was					
interesting	(5)	4	3	2	1	boring
5.	I understood what I was supposed to learn					
most of the time	5	(4)	3	2	1	rarely
6.	The materials were directly related to the objective					
always	5	4	(3)	2	1	rarely
7.	Sufficient practice exercises were included					
too many	5	4	(3)	2	1	too few
8.	I received sufficient feedback on my practice exercises					
always	5	4	(3)	2	1	rarely
9.	The tests measured my performance on the objectives					
always	5	4	(3)	2	1	never

Skill Builders MT Rev 6/13/91

10. I received sufficient feedback on my test results.

always	5	4	3	2	1	never

11. After being in this class, I would

like to have more training like this	5	4	3	2	1	no more training like this

13. What can you do now that you could not do before taking this class?

I do decimals better

14. Has this course helped you meet or work toward any of your personal goals? If so, how?

yes - To get a better Understanding of The Math I did not have in School & brush up on what I dont know

15. Would you recommend this course to a co-worker? Why or why not?

yes - To brush up on needed math they might not know

16. What did you like best about this course? Least?

I Thought it was a good class And I'am going To Take it agin. I would like more Time spent on % Porcent Problems next Time!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY March 3, 1992.

THANK YOU FOR YOUR INPUT!

Leupold & Stevens, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1. This class has been						
very interesting	5	4	(3)	2	1	very boring
2. This class was						
very hard	5	4	(3)	2	1	very easy
3. On the job this class helped me						
to do more accurate work	5	4	(3)	2	1	not at all
4. The instructor was						
interesting	5	4	(3)	2	1	boring
5. I understood what I was supposed to learn						
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6. The materials were directly related to the objective						
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7. Sufficient practice exercises were included						
too many	5	4	(3)	2	1	too few
8. I received sufficient feedback on my practice exercises						
always	5	4	(3)	2	1	rarely
9. The tests measured my performance on the objectives						
always	5	4	(3)	2	1	never

Skill Builders MT Rev 6/13/91

10. I received sufficient feedback on my test results.

always	5	4	(3)	2	1	never

11. After being in this class, I would

like to have more training like this	5	4	(3)	2	1	no more training like this

13. What can you do now that you could not do before taking this class?

a little of my percents

14. Has this course helped you meet or work toward any of your personal goals? If so, how?

I learn decimals, fractions

15. Would you recommend this course to a co-worker? Why or why not?

16. What did you like best about this course? Least?

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY March 3, 1992.

THANK YOU FOR YOUR INPUT!

Leupold & Stevens, Inc.

Math Classes
Learner Evaluation

Rate each item by circling one number in each row.

1. This class has been						
very interesting	(5)	4	3	2	1	very boring
2. This class was						
very hard	5	4	(3)	2	1	very easy
3. On the job this class helped me						
to do more accurate work	(5)	4	3	2	1	not at all
4. The instructor was						
interesting	(5)	4	3	2	1	boring
5. I understood what I was supposed to learn						
most of the time	(5)	4	3	2	1	rarely
6. The materials were directly related to the objective						
always	5	(4)	3	2	1	rarely
7. Sufficient practice exercises were included						
too many	5	4	3	(2)	1	too few
8. I received sufficient feedback on my practice exercises						
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9. The tests measured my performance on the objectives						
always	(5)	4	3	2	1	never

Skill Builders MT Rev 6/13/91

10. I received sufficient feedback on my test results.

always (5) 4 3 2 1 never

11. After being in this class, I would

like to have more training like this (5) 4 3 2 1 no more training like this

13. What can you do now that you could not do before taking this class?

WORK PECENTAGES MORE ACCURATLY.

REFRESHED DECIMAL AND FRACTIONS.

14. Has this course helped you meet or work toward any of your personal goals? If so, how?

15. Would you recommend this course to a co-worker? Why or why not?

YES. GREAT REFRESHER FOR ANYONE

16. What did you like best about this course? Least?

INSTRUCTOR AND MATERIAL WERE GREAT. VERY HELPFUL. WOULD LIKE MORE PRACTISE PROBLEMS.

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY March 3, 1992.

THANK YOU FOR YOUR INPUT!

Leupold & Stevens, Inc.

Math Skills Class

SUPERVISORS' EVALUATION OF PROGRAM

Supervisor's Name: _____ Today's Date: 3-3-92

- How many employees in your department participated in the program? 4
- In your opinion, how would you rate this program's effects on these participants? Circle the number that shows how you feel.

1. The students indicated that the course was well designed and helpful.						
Very well done	5	4	(3)	2	1	poor
2. The[y] mastered the material they were taught.						
definitely	5	4	(3)	2	1	not at all
3. They show greater cooperation and/or problem solving ability since the class.						
Yes	5	(4)	3	2	1	I see no difference
4. The trainees appy the skills learned in class on the job.						
Yes	5	(4)	3	2	1	I see no difference
5. How do you think your employees will be able to handle new training and /or procedures as a result of this class?						
Much better	5	(4)	3	2	1	Much worse

6. What was the most positive effect of this course on the employees?

The employee knowledge learned from the class has inspired some to continue on their own.

7. Would you recommend this program to new employee with low math skills? Why or why not?

yes, they are better for wear & they are more confident with these added skills.

THANK YOU FOR YOUR INPUT!

PLEASE RETURN THIS EVALUATION TO ANTHIA SWANSON BY March 5, 1992.

Skill Builders MT 2/27/92