Does anyone have a literacy test and math test given to potential employees? Can you share what you use?

Summary: Six members reported they don't use one.
*   Four suggested the Wonderlic test.*
*   Four use some variant of an in-house developed or acquired test.*
*   One each reported using Eldwood, Caliper, Hays and Epstein.*

Going back to my days at another company, we used the Wonderlic test. It's probably most well known as the test that the NFL administers to players who may be drafted. It's a general aptitude test, not one that focuses on a specific subject.

In my opinion it's something that you should use as a way to judge a recruit, not a be all, end all test. At one point we required a score of 26 or above to get hired into a professional position.

I'm not sure how it was administered for a production role.

We recently started using Elwood Staffing for testing. They sent us a list with 9 pages of tests we could choose from. They have Basic Industrial Math and Basic Reading Comprehension tests. We pay $50 for every three tests that are taken. They can be taken on-site through a link provided by Elwood. If you have an Elwood location nearby, you send them the contact info for the applicant and they take care of everything and send you the results.

We do a general math test with all candidates we interview

(Editor's note: copy of the test with answer key follows in the addendum. # 1)

We have used skill assessment tests for estimators and production planners. We developed these ourselves. I suggest you google some options for this type of test and then modify it for your specific needs.

I don't use all of the attached for every position, but thought I'd send my packet along. Let me know if you have any questions.

(Editor's note: copy of the test with answer key follows in the addendum. # 2)

Years ago we used to use tests like that, but they were not validated to prove job relevancy so we stopped using them rather than risk Disparate Impact Discrimination. If anyone has validated any math, measurement and/or literacy tests I would love to learn what they are using!

We use the Wonderlic test as a screening tool.

The Wonderlic Personnel Test (WPT-R) helps measure general mental ability, widely accepted as being one of the single best predictors of job success. It helps measure a candidate's ability to understand instructions, learn, adapt, solve problems and handle the mental demands of the position.

We use Wonderlic basic skills testing for nonexempt and a Caliper Profile for exempt.

We currently are not using anything, but we are interested in what is being used.

Basic arithmetic problems and fractions, & decimals equivalents. If one can make change they should know this 8th grade work. Office gets a typing test which includes " the quick brown fox jumps over the lazy white dog" this uses all letters . both tests take ½ hour each. Failure is 75%

We do not do any testing. However, at a previous employer we worked with the local Technical College to identify the math skill needed and developed an assessment to use for new hires.

We use an aptitude test that we purchased from the Hays Company a number of years back for both Name and Numbers. Unfortunately It is proprietary and I can't share the actual simple exam that takes about 10 minutes each to administer requiring at least an 80% grade on each.

However, I can share with you that:

1.   The ability to match a series of numbers (as being the same) is passed by about 98% of all candidates. Those who fail (or those who miss a question) when the numbers equal or exceed 4 digits.
2.   The ability to match a series of numbers is passed by only about 67% of all candidates. The test itself requires turning a page and identifying the closest name on the second page so some of the failure is related to short term memory capabilities, retention, and to some extent the ability to process words systematically.
3.   Lastly, words are made up of characters (like numbers) so it seems inconsistent that the numbers test is easier than the names test.

This works very well for us in that it is used only in a single department that these skills are required thus it meets the BFOQ (Bona Fide Occupational Qualification) standard – in other words, it is an essential part of the job. For example, if a person weight counts screws he needs how to read a scale and do simple multiplication these tests would be invalid OR a Folder Operator who needs to use a rule and think dimensionally these tests would be invalid.

How do you get around the BFOQ? Test to the Job Description (this assumes that it is current). The Folder Operator above should be tested on using a rule, depths, folds, etc. but the matching of names or numbers largely irrelevant to their duties. How do you prove it? Test the incumbents!

We use the attached tests -

- math and ruler for all
- mechanical just for adjusters

But truth be told, many these days are failing the simple math and ruler reading. And we have found that the mechanical testing is not indicative of success as an adjuster. We need to find something more relevant.

(Editor's note: copy of the test with answer key follows in the addendum. # 3)

We use a simple old Wonderlich test which tests math and verbal ability. I think PIA has a printers math test available.

Here's the test we give any potential employees...

(Editor's note: copy of the test with answer key follows in the addendum. # 4)

ADDENDUM

PRE-EMPLOYMENT TEST-

20min.time limit- Do not use calculator or smart phone

I. MATH

ADDITION AND SUBTRACTION:

1. 18 minus 11 =

2. 35 minus 29 =

3. 108 minus 27 =

4. 2,051 plus 1,105 =

5. 783 plus 1,117 =

6. 89 + 107 +50 + 13 +254 =

7. 597 + 6 + 23 + 489 =

MULTIPLICATION AND DIVISION:

8. Multiply 11 by 9 =

9. Multiply 6 by 4 =

10. Multiply 15 by 2,698 =

11. 390   divided by   6 =

12. Divide   35 by 5 =

13. 844 divided by 4 =

14. 1,272 divided by 12 =

MULTIPLES:

15. You need to oil your machine after every 15 rolls have been made. If you make 128 rolls, write each time you will oil your machine:

    Example: 15, 30 . . .

16. You need to check the quality of every 25th roll of labels. You make 216 rolls. Write each time you will check a roll for quality:

    Example: 25, 50. . .

PUTTING NUMBERS IN ORDER:

17. Write the following numbers in order from the smallest to the biggest:

    52314   51986   53728   60941   52294

WORD PROBLEMS:

18. There are 24 rolls of labels in each box. There are 38 boxes. How many total rolls are there?

19. When you began work, 759 rolls of labels had already been made by other employees.
    When you finished working, there were a total of 1,408 rolls.
    How many rolls did you make?

TIME:

20. If you worked the following times, how much total time did you work (in hours and minutes)?

    8:15 AM to 10:30 AM   and   10:40 AM   to 11:40 AM

FRACTIONS AND MEASUREMENT:

21. If the width of a roll of labels can be 1/8 inch longer than 5-1/4 inch, what is the maximum length it can be?

22. Show this fraction as a decimal: 1-1/4

MEASUREMENT: SEE RULER IMAGE ON NEXT PAGE FOR QUESTIONS 23 TO 25

On your answer sheet, for the spaces marked 23 through 25, write what the ruler measurement is.
Example A shows that you would write 1-1/2" (the " stands for inches).

23.

24.

25.

#25

#23 #24

1   2   3   4   5   6   7   8   9   10   11   12
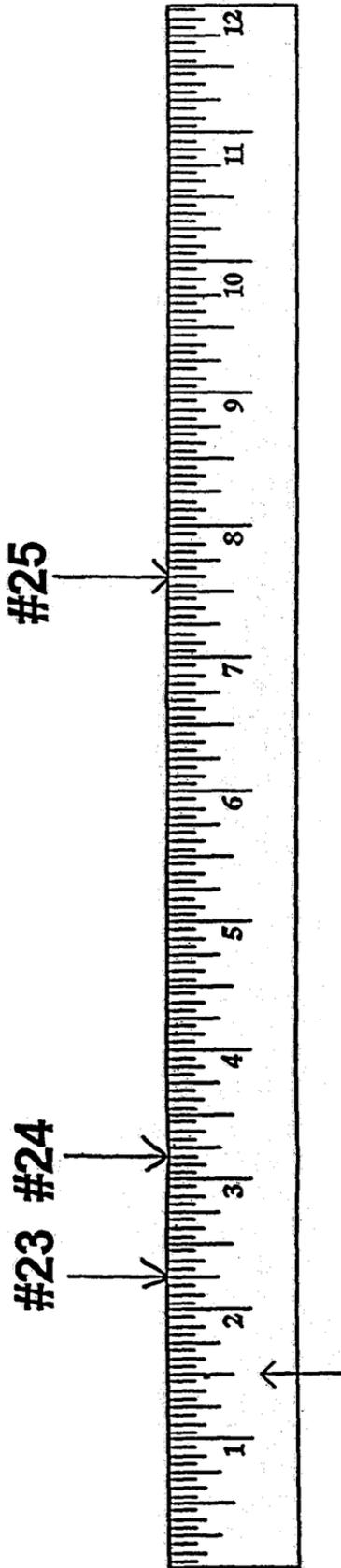
Example A

Example A:
1-1/2"

1. 7

2. 6

3. 81

4. 3,156

5. 1,900

6. 513

7. 1,115

8. 99

9. 24

10. 40,470

11. 65

12. 7

13. 211

14. 106

15. 15, 30, 45, 60, 75, 90, 105, 120

16. 25, 50, 75, 100, 125, 150, 175, 200

17. 51986   52294   52314   53728   60941

18. 912

19. 649

20. 3 HR. + 15 MIN.

21. 5-3/8

22. 1.25

23. 2-1/4"

24. 3-3/16"

25. 7-5/8"

NAME: _____ DATE: _____

MATH SKILLS

Directions: Perform the math function as indicated. You may use a calculator.

```
  2.9060          3.2000
  3.0098          5.9990        14.8750          .0620
 +4.0000         +4.0100       +12.3250        +12.2500
```

```
  3.9458         22.3870       121.0200         15.0600
 -2.4500        -21.9400      -  15.1200       -  5.1250
```

```
  0.8700          .7500          6.0600        100.0000
 x0.5620        x3.5600        x12.2500       x 18.2500
```

12.9 ÷ 3.75 = _____   21.875 ÷ 0.5 = _____   350.06 ÷ 2.88 = _____   106.4 ÷ 3.2 = _____

NAME: _____ DATE: _____

PACKING LIST

Directions: Using the Packing List provided, answer the following questions in the space provided.

1. What is the Order #? _____

2. What is the quantity for item number 3539619? _____

3. Who is the carrier? _____

4. What is the PO number? _____

5. What is the street address the order is being shipped to?

_____

6. What is the description for item number 3559364? _____

_____

7. What is the Form #? _____

8. What is the description for the item listed on line 10? _____

_____

9. What is the Ship Date? _____

10. What is the total quantity of this order? _____

PACKING LIST

From :

To :

Ship Date	: 02-Nov-2009
Order #	:
PO Number	:
Form #	:
	:
Carrier	: Our Truck
Service Name	: Regular
Tracking No	: 1
Shipped by	: K

No.of MyPackaging's : 1

Line Item Details

S.No	Description	Quantity
1	3539256 - COVER LETTER " A "	600
2	3539532 - END USER BROCHURE	500
3	3539619 - SALES REP HANDBOOK	1650
4	3539626 - KIT LABEL	1975
5	3541751 - END USER POSTER (GREEN)	47
6	3541772 - DSR POSTER (RED)	1294
7	3543482 - GRAINGER END USER BROCHURE	640
8	3543494 - KIT "GRAINGER"	45
9	3559320 - GRAINGER COVER LETTER	300
10	3559347 - KIT "A"	37
11	3559364 - COVER LETTER " B "	600
12	3559386 - KIT " B"	42
13	3559416 - MAIL-IN ENTRY FORM (IN 15S)	3225
	Total Quantity : 10955	

Special Services :

Packing List notes :

NAME: _____ DATE: _____

ALPHA-NUMERIC INSPECTION SKILLS

Directions: Compare the series of numbers in each row with the first one in the row. Circle any/all of the numbers that do not match exactly to the first number.

	Correct #				
1	A389AH1	A388AH1	A389AH1	A889AH1	A389AH1
2	A-71435	A-71435	A-17435	A-74135	A-71435
3	15E8277T	15E8277T	51E8277T	15E82TT7	15E827T7
4	AA402ZW4	AA042ZW4	A402ZW4	AA402WZ4	AA402WQ4
5	F6178T405	F6178T405	F6178T405	F6178T045	F1678T405
6	802103	802003	802301	802103	802103
7	54E12 KIT	54E21 KIT	45E12 KIT	45E12 KT	54E12 KIT
8	AB6940BY8	AB9640BY8	AB694BY8	AB6970B8	AB6940BY8
9	102KW4	103KW4	102KW4	102KW4	102GW4
10	SCRPHX1/4	SCRHX1/4	SCRPH1/4	SCRPH1/4	SCRPHX1/4

RULER READING

Directions: Write the measurement of the bar to the right of each ruler.
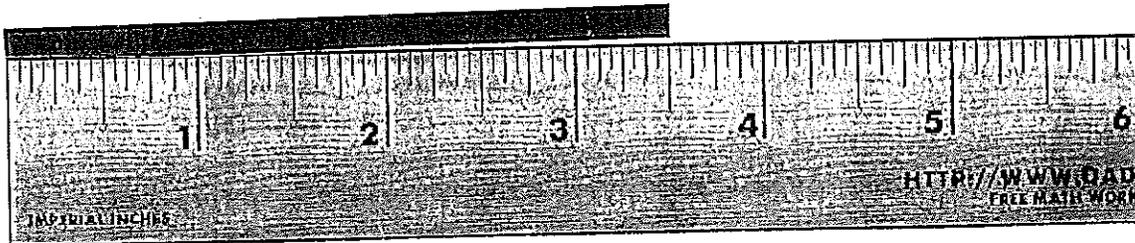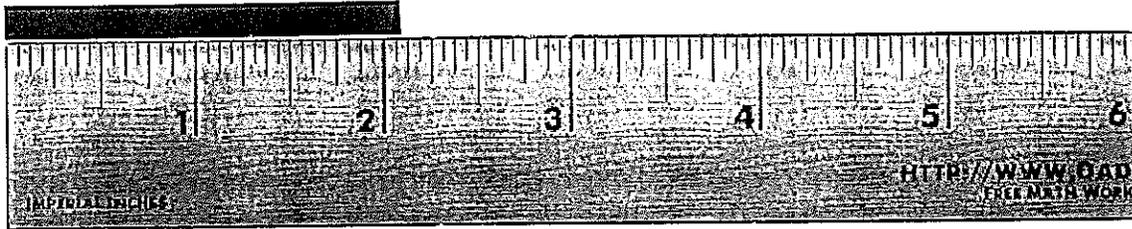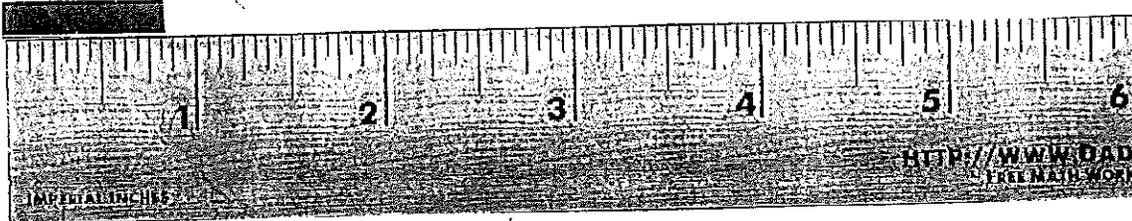
Directions: Put an arrow over the given measurement on the ruler.

$\frac{1}{2}$ in

$5\frac{11}{16}$ in

$9\frac{3}{4}$ in

Eff: 1/2/2014
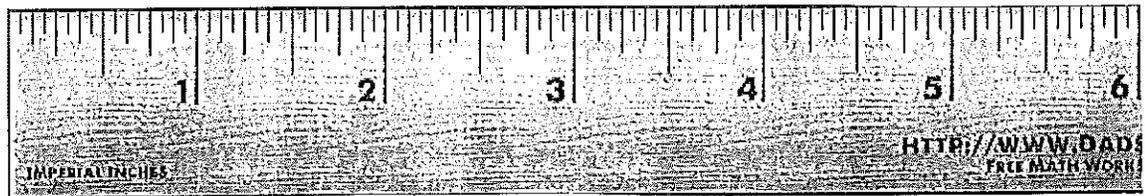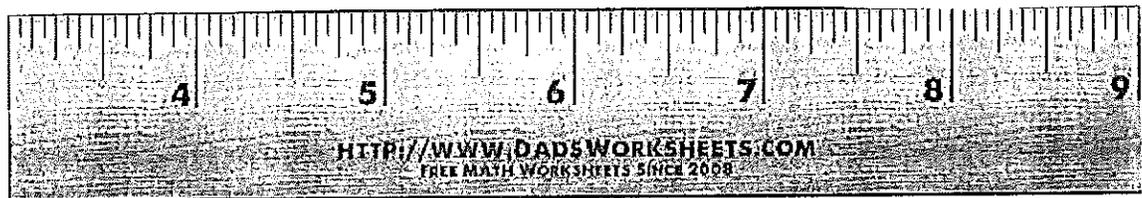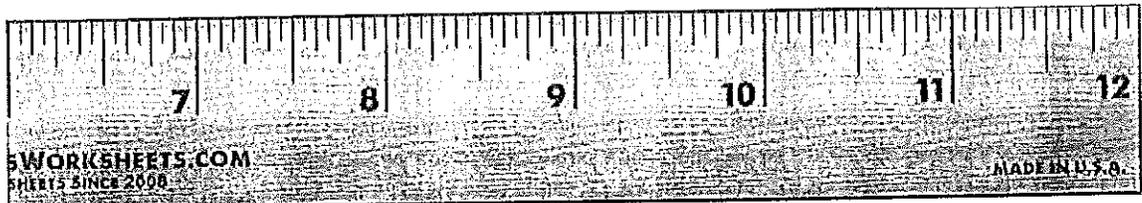
DECIMAL EQUIVALENTS

Directions: Convert the following fractions to decimals.

½ =	
¾ =	
7/8 =	
5/16 =	
¼ =	
5/8 =	
1/16 =	
11/16 =	

Name: _____

SURVEY OF MATHEMATICAL INSIGHT
PART I
Directions: Complete the following math problems

1) 2 + 5 + 4 = _____

2) 9 – 3 = _____

3) 6 × 9 = _____

4) 48 ÷ 8 = _____

5) 9 + 8 – 11 = _____

6) 4 × 6 + 5 = _____

7) 7 × 3 ÷ 7 = _____

8) 9 × 5 ÷ 15 = _____

9) 288 ÷ 36 = _____

10) 180 ÷ 15 = _____

11)
$$\begin{array}{r} 49382 \\ +38765 \\ \hline \end{array}$$

12)
$$\begin{array}{r} 65224 \\ +44902 \\ \hline \end{array}$$

13)
$$\begin{array}{r} 42871 \\ -28983 \\ \hline \end{array}$$

14)
$$\begin{array}{r} 47423 \\ -46530 \\ \hline \end{array}$$

15)
$$\begin{array}{r} 47 \\ \times 36 \\ \hline \end{array}$$

16)
$$\begin{array}{r} 29 \\ \times 67 \\ \hline \end{array}$$

17)
$$\begin{array}{r} 423 \\ \times 27 \\ \hline \end{array}$$

18)
$$\begin{array}{r} 679 \\ \times 68 \\ \hline \end{array}$$

PART 2
Directions: In the following sets of fractions, place a check in the box next to the larger of the two fractions

1) ☐ 2 1/4 ☐ 2 7/8

2) ☐ 3 1/8 ☐ 3 1/16

3) ☐ 5 3/8 ☐ 5 1/2

4) ☐ 4 3/4 ☐ 4 13/16

5) ☐ 6 15/16 ☐ 6 1/4

6) ☐ 9 5/8 ☐ 9 3/4

PART 3

Directions: Using the provided ruler, measure the lines, and answer the questions below.

1) Measure and list the distance between:

Line A & B _____ Inches

Line B & D _____ Inches   A   B   C   D
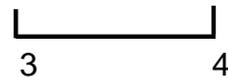
Line A & D _____ Inches

Line A & C _____ Inches

2) Which line is longer, mark with an X:

Line 1 - 2 _____   1

Line 3 - 4 _____

How much longer? _____   3   4

                                                 2

3) How many 1/16"s are in 5/8 of an inch? _____

4) Add 1 7/16 inches and 1 1/2 inches = _____

PART 4

Directions: Use the information below to complete the following math questions.

1 standard **BOX** contains 500 envelopes

1 standard **CARTON** contains 5 standard boxes

1 standard **CARTON** contains 2500 envelopes

1) A standard box contains 500 envelopes.

   A standard carton contains 5 standard boxes.

   How many standard cartons will be
   needed to complete an order for 25,000   _____

2) There are 5 standard cartons per layer on a skid.

   There are 8 layers on a skid.

   How many standard cartons are on a skid?   _____

3) There are 15 standard cartons on a skid.

   How many envelopes are on this skid?   _____

4) There are 60,000 envelopes on a skid.

   How many standard cartons are on this skid?   _____

5) You can cut out 8 envelopes per sheet of the paper.

   How many sheets of paper are necessary
   to cut out 11,000 envelopes?   _____

6) A folding machine folds 300 envelopes per minute.

   How many envelopes will be folded in 5 3/4 hours?   _____
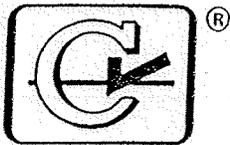
Survey of Mechanical Insight

DEVISED BY DANIEL R. MILLER

Do not write or mark on this booklet unless told to do so by the examiner.

Name ....
Last   First   Middle

INSTRUCTIONS TO EXAMINEES:

This is a mechanical insight test. You may not finish the test, but answer as many questions as you can. Work as fast as you can without making mistakes. In each drawing, the symbol ⊙ stands for an axle which can turn, or on which another part turns. It is fixed so that it cannot be moved from its position. The symbol stands for an axle or pin which can turn and can be moved from its position. For each test item there is a drawing of a mechanical object followed by a statement which may be completed by three possible answers. Choose the one that most correctly completes the statement. Then mark the answer you have chosen as you are told.

DO NOT TURN THIS PAGE UNTIL TOLD TO DO SO.
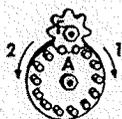
|		Correct Test Booklet Marks	Correct Answer Sheet Marks
SAMPLE: A.	In order for wheel F to be turned, wheel A		
	¹ must turn in direction one.		
	² must turn in direction two.		
	³ may turn in either direction.	_3_ A	A 1 2 3
SAMPLE: B.	When wheel A turns in the direction shown, wheel F		
	¹ must turn in direction one.		
	² must turn in direction two.		
	³ may turn in either direction.	_2_ B	B 1 2 3
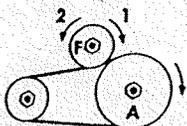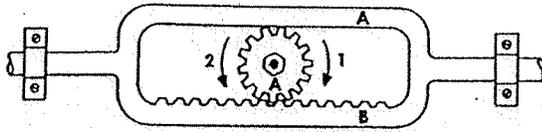
1. In order for the frame to keep moving back and forth, wheel A

    1 must turn in direction one.
    2 must turn in direction two.
   3 must turn in changing directions. _____1
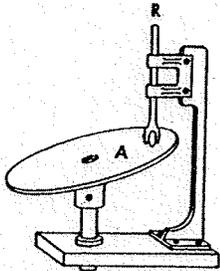
2. As wheel A turns, it causes rod R to go up and down. In order for rod R to move a greater distance up and down than at present,

    1 rod R should be moved nearer the center of wheel A.
    2 the angle of tilt of wheel A should be increased.
   3 wheel A should be made smaller. _____2
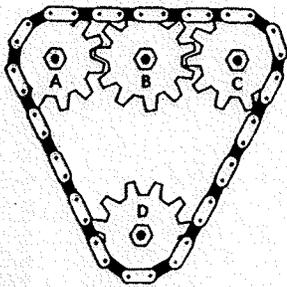
3. This mechanism cannot work. In order for the chain to move,

    1 remove wheel B.
    2 remove wheel A and adjust the size of the chain.
    3 move wheel C away from wheel B and adjust the size of the chain. _____3
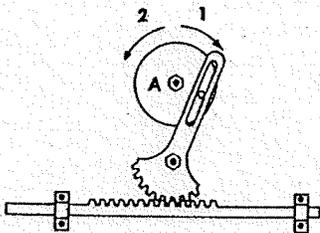
4. When this mechanism is in operation, wheel A

    1 must turn in direction one.
    2 must turn in direction two.
   3 may turn in either direction. _____4
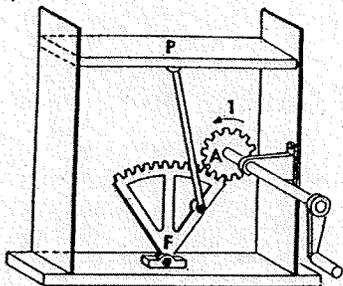
5. The most correct statement concerning this drawing is that

    1 as wheel A turns in direction one, platform P goes up.
    2 this mechanism will not operate if wheel A turns continuously in one direction.
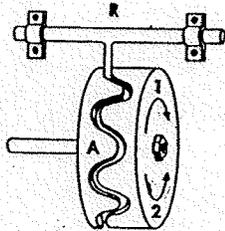   3 the platform will rise more slowly if wheel A is made larger. _____5
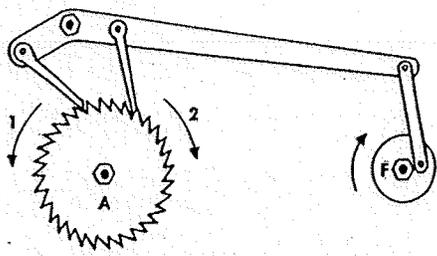
6. When wheel F turns in the direction shown, wheel A

   ¹ must turn in direction one.
   ² must turn in direction two.
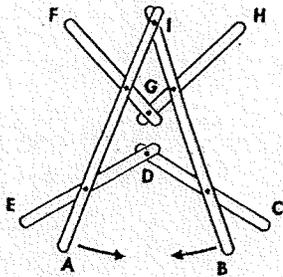   ³ may turn in either direction.　　＿＿6
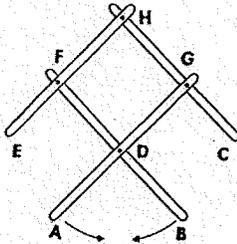
7. When A and B are moved together,

   ¹ the distance between F and G increases.
   ² the distance between D and H decreases.
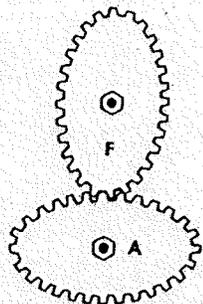   ³ the distance between D and C decreases.　　＿＿7

8. In order for rod R to be moved back and forth, wheel A

   ¹ must turn in direction one.
   ² must turn in direction two.
   ³ may turn in either direction.　　＿＿8

9. When A and B are moved together,

   ¹ the distance between E and F increases.
   ² the distance between C and E increases.
   ³ the distance between H and I increases.　　＿＿9

10. The teeth of wheel F will always fit between the teeth of wheel A. The most correct statement concerning the drawing is that

    ¹ when wheel F turns continuously, wheel A makes occasional stops.
    ² only wheel F can be the driver (the wheel that makes the other wheel turn).
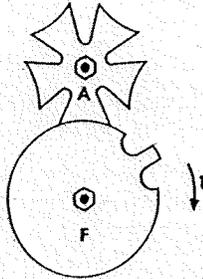   ³ for each complete turn of wheel F, wheel A makes a complete turn.　　＿＿10
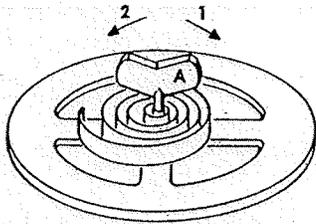
11. In order to wind the spring, handle A

    ¹ must be turned in direction one.
    ² must be turned in direction two.
    ³ may be turned in either direction. _____11
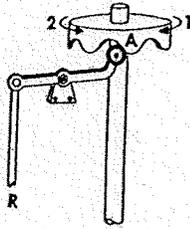
12. In order for arm R to be moved up and down, wheel A

    ¹ must turn in direction one.
    ² must turn in direction two.
   ³ may turn in either direction. _____12

13. The most correct statement concerning this drawing is that

    ¹ wheel F makes five turns for each turn of wheel A.
    ² this mechanism will not work unless wheel F turns in direction one.
    ³ either wheel can be the driver (the wheel which makes the other wheel move). _____13
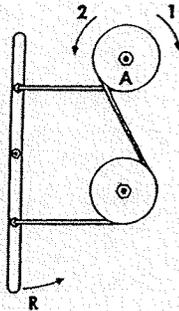
14. If arm R is pushed to the right, wheel A

    ¹ must turn in direction one.
    ² must turn in direction two.
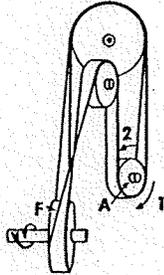   ³ may turn in either direction. _____14
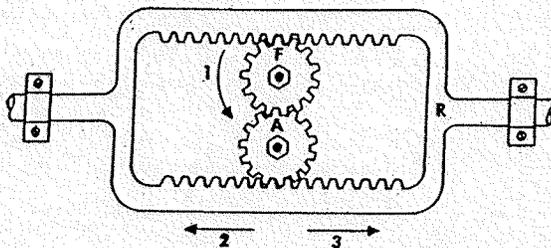
15. The most correct statement concerning this drawing is that

    ¹ as wheel F turns in direction one, frame R turns in direction three.
    ² the mechanism will keep on working only if the wheels keep turning in the same direction.
   ³ either wheel or the frame can be the driver (the part which makes the other parts move). _____15
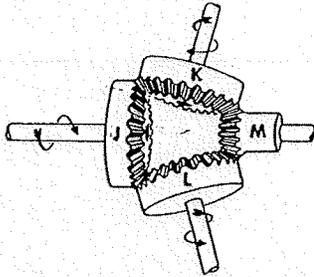
16. When wheel J turns in the direction shown,

    1 wheel M turns in the opposite direction.
    2 wheel K turns in the direction shown.
    3 wheel L turns in the direction shown. ____16

17. When wheel F turns in the direction shown, wheel A

    1 must turn in direction one.
    2 must turn in direction two.
    3 may turn in either direction. ____17
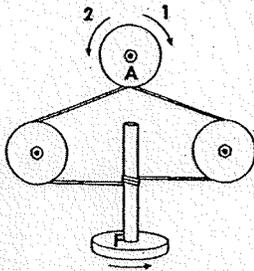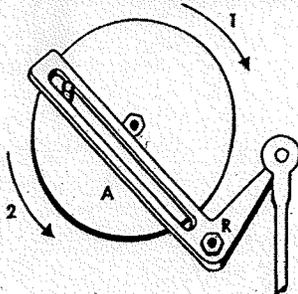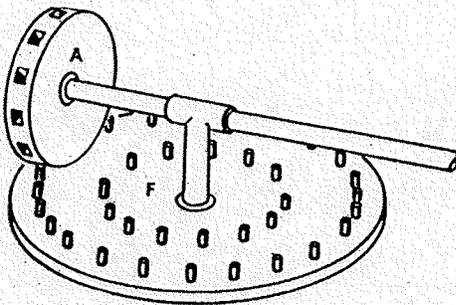
18. When wheel F turns in the direction shown, wheel A

    1 must turn in direction one.
    2 must turn in direction two.
    3 may turn in either direction. ____18

19. In order for arm R to move back and forth, wheel A

    1 must turn in direction one.
    2 must turn in direction two.
    3 may turn in either direction. ____19

20. Wheel A turns wheel F. Wheel A may be moved back and forth between the outside of wheel F and the center. If wheel A is turned at a constant speed,

    1 wheel F will turn faster if the pegs nearest the center are turned by wheel A.
    2 wheel F will turn faster if the pegs nearest the outside are turned by wheel A.
    3 wheel F will turn at the same speed no matter which pegs are turned by wheel A. ____20

21. When this mechanism is in operation, wheel A

    1 must turn in direction one.
    2 must turn in direction two.
    3 may turn in either direction.

    _____ 21

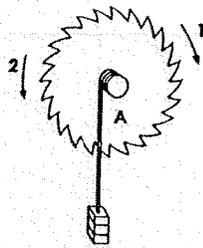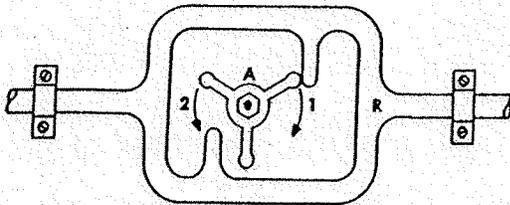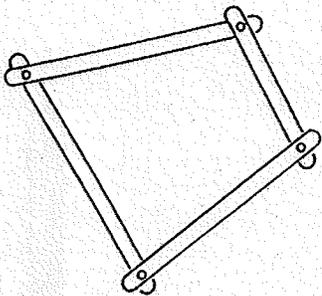22. In order for frame R to move back and forth, wheel A

    1 must turn in direction one.
    2 must turn in direction two.
    3 may turn in either direction.

    _____ 22

23. The least number of strips that must be attached to the frame so that its shape cannot be changed is

    1 one.
    2 two.
    3 three.

    _____ 23

24. Rack G cannot move. Rack S can move back and forth. As the bolt on wheel F moves from position A to position B,

    1 arm R moves to the right.
    2 wheel X turns in direction one.
    3 rack S and arm R move in opposite directions.

    _____ 24

25. The cord which is attached to arm R is pulled tightly around the two wheels. If arm R is pushed to the right, wheel A

    1 will keep turning in direction two.
    2 will keep turning in either direction.
    3 will not turn.

    _____ 25
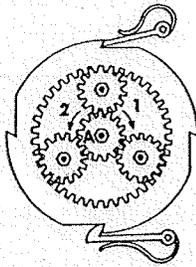
26. When this mechanism is in operation, wheel A

1 must turn in direction one.
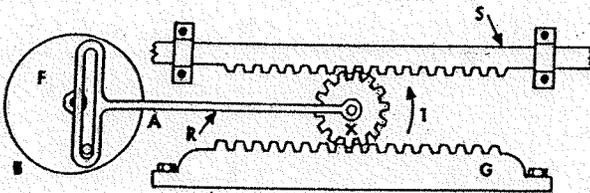2 must turn in direction two.
3 may turn in either direction. _____26
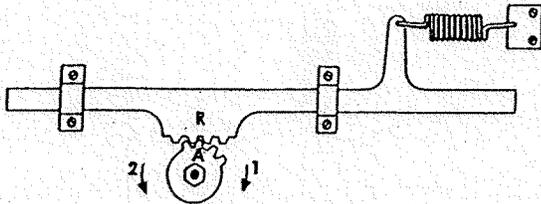
27. In order for arm R to move back and forth, wheel A

1 must turn in direction one.
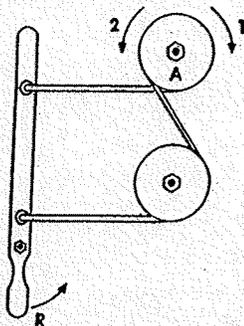2 must turn in direction two.
3 may turn in either direction. _____27

28. The curved bar on wheel F fits between the teeth of wheel A. When wheel F is turned in the direction shown, wheel A

1 must turn in direction one.
2 must turn in direction two.
3 must turn in changing directions. _____28

29. In order for wheel F to be turned, wheel A

1 must turn in direction one.
2 must turn in direction two.
3 may turn in either direction. _____29
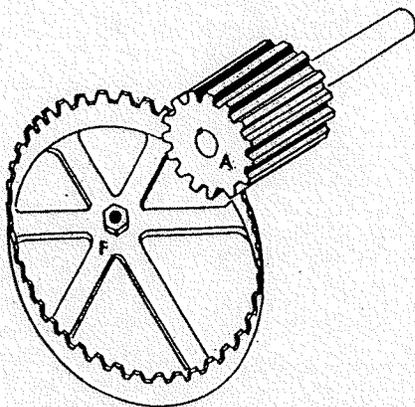
30. The teeth of wheel F will always fit between the teeth of wheel A. The reason wheel F was not made round rather than as shown is that

1 only one wheel can be the driver (the wheel that makes the other wheel move).
2 when one wheel turns at a constant rate of speed, the speed of the other wheel changes continuously.
3 when one wheel turns continuously, the other wheel stops turning at certain points. _____30
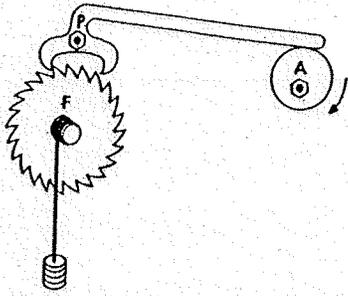
31. The most correct statement concerning this drawing is that

  1 in order for the mechanism to work, wheel A must turn in the direction shown.
  2 wheel F turns in the same direction as that shown for wheel A.
  3 wheel F does not move continuously. _____31
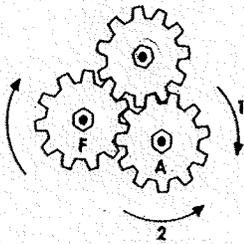
32. The teeth of the three wheels are engaged. If a force is applied to wheel F in the direction shown, wheel A

  1 must turn in direction one.
  2 must turn in direction two.
  3 cannot turn. _____32
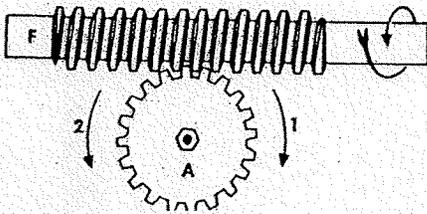
33. If screw F turns in the direction shown, wheel A

  1 must turn in direction one.
  2 must turn in direction two.
  3 may turn in either direction. _____33
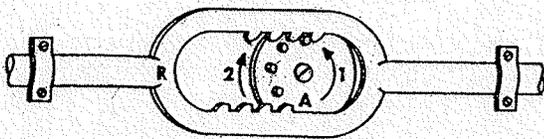
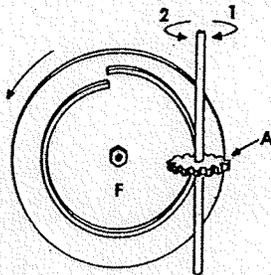34. In order for frame R to move back and forth, wheel A

  1 must turn in direction one.
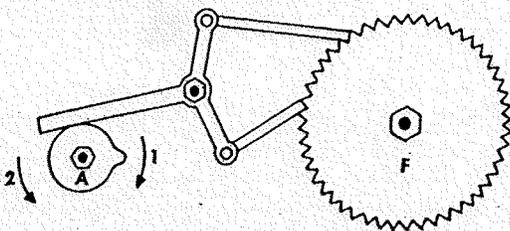 2 must turn in direction two.
  3 may turn in either direction. _____34
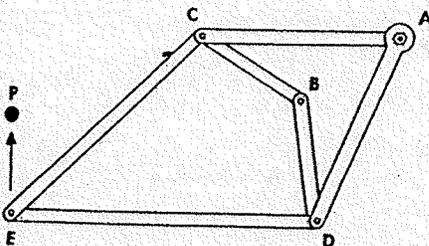
35. If E is moved upward to point P,

  1 the distance between A and B decreases.
  2 the distance between C and D increases.
  3 the distance between B and E increases. _____35

STOP   NOW WAIT FOR FURTHER INSTRUCTIONS

Raw Score
$\left(\text{No. right} - \dfrac{w}{2} \right)$ ....

Scoring Key for use with the Survey of Mechanical Insight

1.	3
2.	2
3.	1
4.	3
5.	2
6.	2
7.	3
8.	3
9.	1
10.	3
11.	2
12.	3
13.	1
14.	1
15.	3
16.	1
17.	1
18.	2
19.	3
20.	1
21.	2
22.	1
23.	1
24.	2
25.	3
26.	1
27.	2
28.	2
29.	3
30.	2
31.	3
32.	3
33.	1
34.	2
35.	2

SCORING:
25 and up……A   # right – (# wrong\2)
21-24…………B   highest possible score =35
17-20…………C
16 and below..D-F

This scoring is to be used for the first 35 questions.

Survey of Mathematical Insight

Part I

(1) 11
(2) 6
(3) 54
(4) 6

(5) 6
(6) 29
(7) 3
(8) 3

(9)   88147
(10) 110126
(11) 13888
(12) 893

(13) 1692
(14) 1943
(15) 11421
(16) 46172

(17) 8
(18) 12

Part 2

(1) (2 ¼)   2 7/8

(2) 3 1/8   (3 1/16)

(3) (5 3/8)   5 ½

(4) (4 ¾)   4 13/16

(5) 6 5/16   (6 ¼)

(6) (9 5/8)   9 ¾

Part 3

(1) A & B= 1 1/16
     B & D= 1 7/8
     A & D= 2 15/16
     A & C= 1 15/16

(2) Line B

     1/16

(3) 10

(4) 2 15/16

Part 4

(1) 10 standard cartons
(2) 40 standard cartons
(3) 37,500 envelopes
(4) 24 standard cartons
(5) 1375 sheets of paper
(6) 103,500 envelopes

Testing Printers' Basic Math Skills

By: Jack J. Epstein

How many times do we have to complain about the lack of fundamental education of entry-level workers before doing something about it? It's time to take a new approach as blaming the school system, politicians or MTV doesn't do anything to improve the ability of works to read instructions or run equipment.

People apply for job openings who don't have basic reading, writing, math and ruler reading ability. You have to be kidding yourself if you expect them to be able to understand job jackets, read equipment manuals or understand written procedures. If we could improve the fundamental skills of our workers, wouldn't we be increasing their opportunity for promotions and increase morale? Might spoilage and turnover get reduced? By sharing knowledge, the company's expectations of people won't lead to disappointments.

When and how to identify workers that need help is a matter of company policy and state law. Some printing companies ask questions including at least one that demonstrates ruler reading ability as part of their job application. Others firms ask applicants to complete the form on the premises to prevent outside intervention. What you don't want to do is prejudice your opinion of a worker that could have a wonderful attitude and work ethics, but presently is self-limited by their lack of basic education. Some of these people can be a valuable asset, but only in certain jobs that will require constant supervision. In other cases you might find a diamond in the rough who could qualify for a more complex positions.

One large printing company hired a retired teacher, bought a trailer and opened a training center using a professional educator. The lessons were centered around specific skills a worker needs to do their job properly. They went over job jackets, math as used

on the production floor, equipment manuals and company policies. Some people who never understood the importance of math in school finally had an incentive to learn.

Don't assume anything about people just because they have a certificate of graduation from a program. There are college graduates who have problems adding fractions. I recommend you test everyone and identify those people that if you listen are screaming for help. The following list of questions is a practical math and reasoning test. You can add or delete items to fit your particular needs. It does not have multiple-choice answers on purpose as guessing should never be encouraged when it comes to interpretation of instructions. The use of a calculator should be allowed. Someone must go over wrong answers with employees. People who scored below 75% should be considered candidates for remedial training. Would you want an estimator who didn't get at least 90%?

Printing Math Test

1. If a skid of paper weighs 2,000 pounds and the paper costs 40¢ per pound, how much is the skid worth? *$800*

2. You live 30 miles from work and your car gets 20 miles per gallon. How much gasoline will it take you to make 5 round trips per week? *15 gallons*

3. How many 8 1/2 x 11 pieces of paper can you cut out of a 22 x 34 sheet? *8*

4. There are 20 layers of books on a skid. Each layer has 40 books. How many books are on the skid? *800*

5. A roll of laminate is 19" wide and 10,000 feet long. How many 19"x24" sheets of paper will the roll cover" *5000 sheets*

6. If 100 sheets of cover paper measurers 1", how many sheets are in a stack of paper 35 1/2" high? *3550 sheets*

7. If a single carton weighs 50 pounds and there are 15 cartons total, how much do all the cartons weigh? *750#*

8. If someone makes $10 per hour and overtime is paid after 40 hours per week at time and a half, how much will someone earn working 50 hours in a week? *$550*

9. If a page in a book is 7" wide and the customer wants 3/4" on both the left and the right side of each page of white paper, how wide will the column of type be? *5.5"*

10. A service technician comes to fix one of our machines and they charge $75 per hour. If they need 5 hours to fix the machine, how much will it cost us? *$375*

11. A customer wants us to mail a flyer for them. There are 20,500 pieces. The postage will cost 20¢ each. How much will the postage cost total? *$4100*

12. If a printing press runs at 5,000 per hour, how long will it take to print 25,000 sheets? *5hours*

13. One ream of paper is 500 sheets. Each carton holds 10 reams. How many total sheets are in a carton? *5000sheets*

14. John pays $80 every other week towards his health insurance. How much does he pay for his insurance for the entire year? *$2080/yr*

15. A printing job costs $6,000. The State sales tax is an additional 5%. How much would the entire bill be? *$6300*

16. If blue ink costs $7.50 per pound, and it comes in 5 pound cans, how much does 1 can cost? *$37.50/can*

17. A book is 8 1/2 x 11 x 1/4" high. Our cartons are 11 1/8 x 17 1/8 x 6" high. How many books will fit in a carton? *48books*

18. A binding machine takes 1 helper for every 4 pieces. A book has 23 pieces, how many helpers will it take to bind the book? *6 helpers*

19. A CD burner can burn 1 CD in 20 seconds. We need to make 600 CD's. How long will it take to make all of them? (give the answer in hours and minutes) *3hrs 20mins*

20. A 3 ring binder used for a loose-leaf book has pages that are 8 3/8" wide x 10 7/8" tall. The publisher wants to divide the notebook into sections by using tabs on heavy weight paper that extend 1/2" beyond the text pages on the outside edge. What would the total width of the tab pages be? *8 7/8"*

21. A customer order 7,500 brochures and they will get produced 1 at a time on a color copier. The copier needs 50 make-ready sheets for waste. In addition, the bindery will need 2% run waste. How many total sheets will be required to produce the order? *7700sheets*

22. A sheet of paper is 9" x 16" and it is supposed to fold so there are equal 4 panels. The piece will then go into a standard business envelope that is 4 1/8"x9 1/2". What will the final size of the brochure be? *4x9*

23. Sally is a sales representative and gets 8% of the value of the jobs she sells. How much does she have to sell to earn $50,000 per year? *$625,000*

24. We are making a calendar that is 8 1/2"x11". The customer wants 1 hole drilled along the 11" edge so it can hang on a wall using a thumbtack. Where will the center of the hole be from the outside edges of the paper? *5.5"*

25. We need to punch holes in paper so a cookbook can have wire put in it so it will lay flat. The punch does 3 holes per inch. The book will bind along the 9" edge of the paper. There needs to be some solid paper at each edge. How many holes will get punched? *27*

26. What will the total thickness of a book be if 350 pages are 5/8" and 100 pages are 3/16"? *13/16"*

27. A software company charges $800 for each user who uses their program on a computer. We have 14 people using the software. How much will we have to pay? *$11,200*

28. A customer orders 15,000 envelopes. By printing industry standards, we can deliver up to 10% over the amount ordered. What is the maximum number of envelopes we can deliver? *16,500*

29. A printing job will take 2 pounds of ink per side for each 1,000 sheets. The paper will print on both sides. How much ink will be required to print 50,000 pieces? *200#*

30. Color is measured by a hand held tool called a densitometer. If the standard density should be 1.80 +/- 10%. What is the range the color should be? *1.62-1.98*

31. If it takes 3 minutes to proofread each page and there are 70 pages total. How long should the job take? *3hours and 30mins*

32. An apprentice folder operator was 75% efficient last year and earns 75% of scale that is $20.00 per hour. What is his base rate of pay? *$15/hr*

33. The maximum weight a truck can legally carry is 40,000 pounds. Each skid we want to load in the truck weighs 1,950 pounds. How many full skids can we load in one truck? *20 full skids*

34. We make 120,000 magazines. The publisher wants 250 copies sent to them in advance. They give us a mailing list of 118,450 names. After the mailing is done, they want us to send all the extra magazines to their office. How many will the last shipment be? *1300c*

35. Time on a big printing press sells for $400 per hour. The press is down for 18 minutes to make a repair. How much potential income was lost? *$120*

36. It takes Sally 15 seconds to collate 4 pieces and put them in an envelope. It takes Joe 20 seconds each to do the same task. How many more finished pieces will Sally do in an hour than Joe? *60more*

37. Sammy earns $15.00 per hour and was 15 minutes late to work. How much did he lose in wages? *$3.75*

38. Paper costs 65¢ per pound. The press operator wasted 120 pounds of paper because the ink was not adjusted properly. What was the value of the paper that got wasted? *$78*

39. A printing press uses 12 rollers for each printing unit. There are 6 units on the press. The average cost of each roller is $150 each. What will it cost to replace all the rollers? *$10,800*

40. We get paid 2.5¢ per pound for waste paper by a recycling company. How much will we get for 23,000 pounds? *$575*

41. An estimator averages 12 estimates a day. Each estimator works 5 days a week. They get 2 weeks of vacation and 10 paid holidays. How many estimates a year will an estimator do? *2880estimates*

42. Printing plates cost $1.50 per square foot. The plates used on a particular press are 24"x48". How much does each plate cost? *$12.00*

43. We charge $100 per hour to retouch photographs. A customer gives us 8 pictures that need some additional work. We estimate that it will take 2 hours and 45 minutes to do all of them. How much will we charge the customer for the additional work? *$275*

44. In question #43, if the work is charged at the estimated cost for time, and we can do it in 2 hours and 15 minutes how much extra will we make? *$50add'l*

45. The company sales are $10,000,000 per year. There are 7 sales people. How much does the average sales rep sell? *$1,428,571.43*

46. We buy cartons for 65¢ each. Our company policy is to mark-up all supplies 40%. How much will we resell each carton for? *91¢*

47. John has a 401K retirement account. He saves 5% of his earnings and his average wages are $3,000 per month. How much a year will he save? *$1800/yr*

48. A shrink-wrap machine can run faster the more people that are put on it. It can do 500 pieces per hour with 2 people, 900 per hour with 3 people and 1,100 per hour with 4 people. Per labor hour, what is the more efficient way to staff the machine? *3people*

49. The average roll of paper weighs 1,000 pounds. A job will take 30 rolls total. This paper costs 50¢ per pound. There is 20 pounds of waste on each roll. What is the total value of the waste? *$300*

50. Two people in the bindery stop and talk for 6 minutes about what their plans are for the weekend while they are on the clock. During this time, nothing is produced. Their time is valued at $50.00 per hour each. How much did this conversation cost the company? *$10*

51. If envelopes cost $28.50 per 1,000 – how much does each envelope cost? *2.85¢*

52. Odd page numbers are normally on the right hand side of a book. Even page numbers are on the left. What side would Page #16 be on? *left*

53. The preliminary pages of a book are typically numbered using roman numerals. If they go from i – xiv how many pagers are there before the main text? *14 or 7 sheets*

54. A perfect bind machine can run faster the more people that are put on it. It can do 500 pieces per hour with 2 people, 800 per hour with 3 people and 900 per hour with 4 people. Per labor hour, what is the more efficient way to staff the machine? *3people*