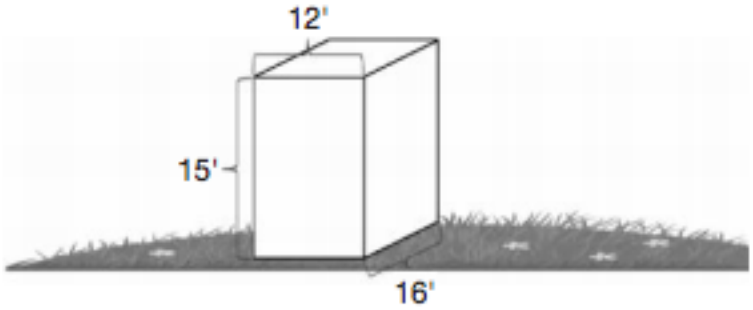
10 Problems

I. Skim the problems in this packet. Decide with a partner which problem/s you would like to solve.
II. Work to solve a couple of the problems on your own (without your partner).
III. Discuss strategies and solutions with your partner.
IV. Together with your partner, write a short description of each problem that defines how it is different…
    A. from typical math problems
    B. and the other problems in this packet
V. Try more problems if you have time.

1)



The figure above shows the dimensions of a new memorial located at the entrance of the town park. The memorial is to be painted.

$$2(12\times16) + 2(15\times12) = 1224$$

Does the above calculation give us useful information about this context? Explain.

2)

The table below shows free-throw data for five basketball players.

Name	Baskets Made	Total Number of Shots Taken
Tom	15	30
Ellen	12	25
Hank	2	20
Jeanine	23	25
Ron	32	33

Rank the players from best to worst for free-throws made. Explain your reasoning.

_____ _____ _____ _____ _____

Best Worst

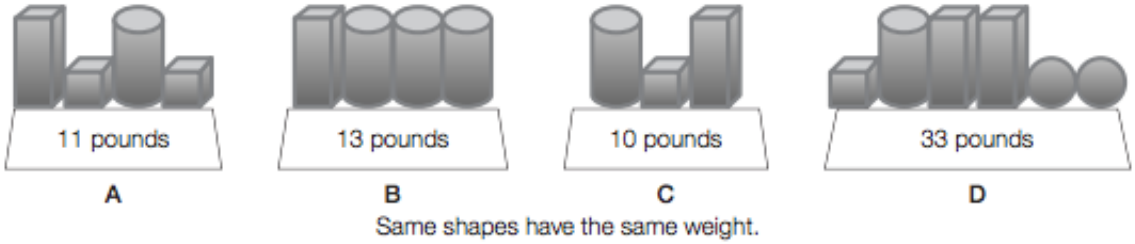
3)

Statement:

Sarina entered a 3.5 mile race. She ran the first ½ mile in 5 minutes 30 seconds. If Sarina continues running at that speed, she will finish the race in 33 minutes.

What, if anything, is wrong with the statement above? If something is wrong, explain the error and how to fix it. If the statement is correct, explain why it is valid.

4)



Same shapes have the same weight.

Decide if each statement below is true or false. Explain your answer.

Julie: "  weighs more than  ."

Tom: "  weighs less than  ."

Marcus: "  weighs the same as  ."

5)

Describe a situation for which this equation would apply. Use a drawing if helpful.

$$S = \frac{\$12.50 + \$10.50 + \$8.75 + \$20.25}{4}$$

6)

$$-7 = 3x - y$$

Which of these is true?

As x increases by 1 in the equation above, y increases by:

a. 1

b. 2

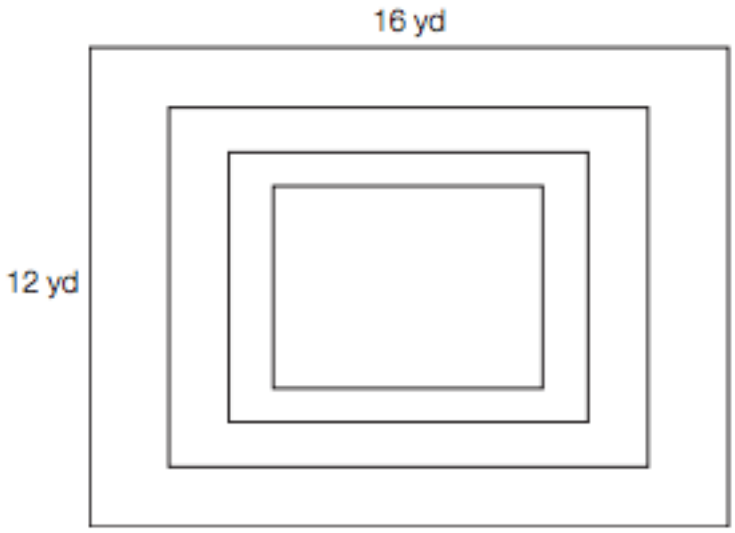
c. 3

d. 7

e. 10

How did you make your decision?

7)



In this figure, each smaller rectangle has ¾ the area of its surrounding rectangle.

Which of these is true?

The area of the smallest rectangle is about:

a. 81 square yards b. 108 square yards
c. 144 square yards d. 192 square yards

Explain your reasoning.

How sure are you of your answer? Darken one of the squares below.

Guessed				Sure			Certain		
1	2	3	4	5	6	7	8	9	10

8)

Use all numbers in the rectangle. Fill in the blanks so that the story makes sense.

The Stay Warm Company had an end-of season sale. The regular price of a sweater is $ _____. The regular price of a sweatshirt is less than half the price of a sweater, or $ _____. Both items are on sale. The sweater is on sale for _____% off, and is being sold for $ _____. The sweatshirt is on sale for $ _____. The total cost of the two sale items is $ _____.

21.00	**30**	**42.00**
66.50	**87.50**	**95.00**

9)

Fill in numbers so that the story makes sense.

On the interstate, Mr. Ivy drove _____ miles in _____ minutes. At that speed, he made the 140-mile trip from Phoenix to Flagstaff in _____ hours.

On the same interstate, Ms. Fern's average speed of _____ miles per hour was less than Mr. Ivy's. Ms. Fern made the 140-mile trip in _____ hours, or _____ minutes more than it took Mr. Ivy.

And a bonus problem from:

Problems Without Figures For Fourth Grade To Eighth Grade And For Mental Reviews In High Schools And Normal Schools by Gillan, S. Y. (1909!). Retrieved from **http://www.schoolinfosystem.org/pdf/2008/10/problemswithoutfigures.pdf**

10) Problem 13: How can I find how many times a wagon wheel will turn in going three miles? (p. 6)

The problems in this packet are from the article, "Tasks to Advance the Learning of Mathematics"*, by Carole Greenes (Journal of Mathematics Education at Teachers College, Spring/Summer 2014)*

This article and archived issues are available at
http://journals.tc-library.org/index.php/matheducation/