Name _____   Date_____

Topic: Proportions in the Real World

a) Robin is making bows to sell at her mother's yard sale. She will use $\frac{3}{4}$ foot of
red ribbon and $\frac{2}{3}$ foot of blue ribbon to make each bow.

1) What is the ratio of the length of red ribbon to blue ribbon?

Solution:_____

2) What is the ratio of the length of red ribbon to blue ribbon written as a unit rate? Show
how you converted this ratio to a unit rate.

Solution:_____

3) What is the ratio of the length of blue ribbon to red ribbon?

Solution:_____

4) What is the ratio of the length of blue ribbon to red ribbon written as a unit rate? Show
how you converted this ratio to a unit rate.

Solution:_____

b) Travis was attempting to make muffins to take to a neighbor that had just moved in down the
street. The recipe that he was working with required $\frac{3}{4}$ cup of sugar and $\frac{1}{8}$ cup of butter.
Travis accidentally put a whole cup of butter in the mix.

1) What is the ratio of sugar to butter in the original recipe? What amount of sugar does
Travis need to put into the mix to have the same ratio of sugar to butter that the original
recipe calls for? Explain your answer.

Solution:_____
_____
_____

2) If Travis wants to keep the ratios the same as they are in the original recipe, how will the
amounts of all the other ingredients for this new mixture compare to the amounts for a
single batch of muffins? Explain your answer.

Solution:_____
_____
_____

3) The original recipe called for $\frac{3}{8}$ cup of blueberries. What is the ratio of blueberries to butter in the recipe? How many cups of blueberries are needed in the new enlarged mixture?

Ratio of blueberries to butter is _____.

There are _____ cups of blueberries needed in the new enlarged mixture.

4) This got Travis wondering how he could remedy similar mistakes if he were to dump in a single cup of some of the other ingredients. Assume he wants to keep the ratios the same.

   a. How many cups of sugar are needed if a single cup of blueberries is used in the mix?

   Solution:_____

   b. How many cups of butter are needed if a single cup of sugar is used in the mix?

   Solution:_____

   c. How many cups of blueberries are needed for each cup of sugar?
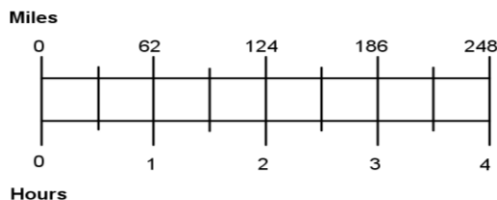
   Solution:_____

c) While driving on I-10, Geoffrey used his cruise control so that the number of miles he traveled was proportional to the time he spent driving. After five hours, Geoffrey had driven 340 miles. Determine the constant of proportionality and explain its meaning in the context of this situation.

The constant of proportionality is _____.
The meaning of the constant of proportionality is _____
_____

d) While driving on I-75, Geoffrey used his cruise control so that, again, the number of miles he traveled was proportional to the time he spent driving. The double number line diagram shows the relationship between the time he spent driving and the number of miles travelled. Determine the constant of proportionality and explain its meaning in the context of this situation.

The constant of proportionality is _____.
**The meaning of the constant of proportionality is _____**
_____
_____

e) Lena paid $18.96 for 3 pounds of coffee.
(a) What is the cost per pound of coffee?

Solution:_____

(b) Let x be the number of pounds of coffee and y be the total cost of x pounds. Fill in the table of the proportional relationship between the number of pounds of coffee and the total cost.

x	1	2	3	4	5	6	7
y							

(c) Create a graph that represents the proportional relationship between the number of pounds of coffee and the total cost.
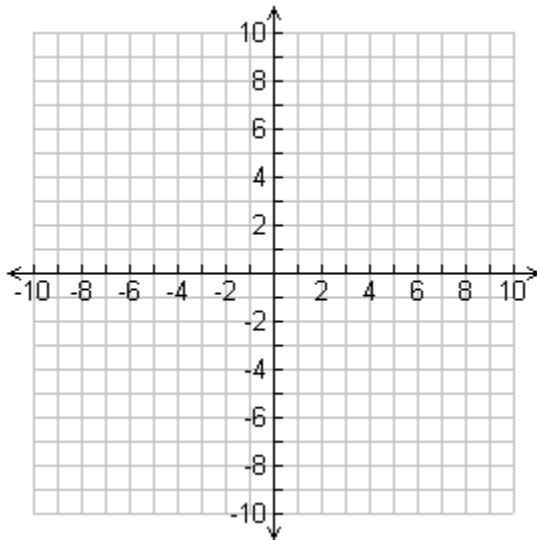
(d) Where can you see the cost per pound of coffee in the graph? What is it?
Solution:_____
_____
_____

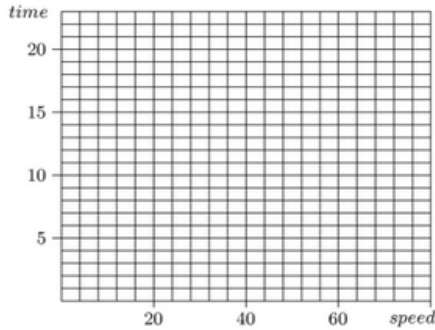(e) In this situation, what is the meaning of the slope of the line you drew in part (d)?

Solution:_____
_____
_____

f) To do a college visit, Wes must make a 240-mile trip by car. The time required to complete the trip depends on the *speed* at which Wes drives, of course, as the table below shows.

   a. Fill in the missing entries, and plot points on the grid provided.

speed	15	20	25			48		60		r
time		12		8	6		4.8		3	

   b. Do the quantities time and speed vary directly? It makes sense to connect your plotted points with a continuous graph. Explain why.
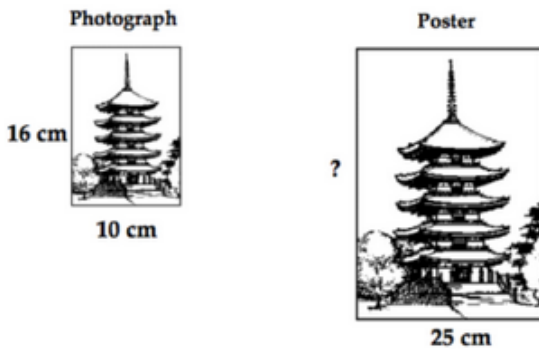
   _____

   _____

   _____

g) The photograph below is enlarged to make a poster.

Photograph   Poster

16 cm

10 cm

?

25 cm

(a) How tall is the poster?

Solution:_____

(b) The building on the poster is 30cm tall. Is it possible to figure out how tall the building is on the photograph? If you think it is possible, show how. If you think it is not, explain why.
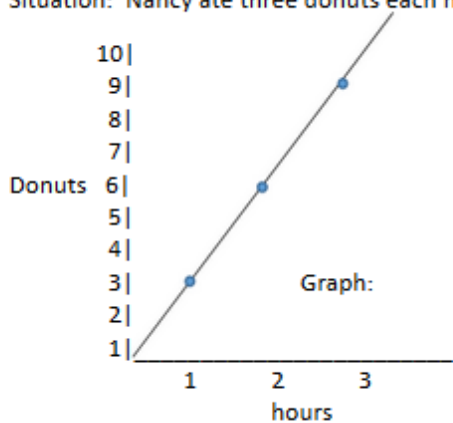
   _____

   _____

   _____

Directions: Use graph paper for this assignment.

- Come up with a situation that fits the given equation
- Make a ratio table (or function table) with the given constant
- Make a graph that is labeled with what y and x represents and graph the slope
- Write a sentence describing the graph.

EXAMPLE: y=3x

Situation: Nancy ate three donuts each hour.

```
10|                              /
 9|                          •
 8|                      /
 7|                  /
Donuts  6|              •
 5|          /
 4|      /
 3|    •          Graph:
 2|  /
 1|/_____
      1     2     3
         hours
```

Ratio Table:

Donuts	3	6	9	3x
Hours	1	2	3	x

Sentence:

If Nancy eats three donuts each hour, she will be able to eat 9 donuts in 3 hours.

Problems:

1. Y=9x
2. Y=2x
3. Y=7x
4. Y=8.5x
5. Y=23x