Name _____ Your score (#points) _____

Pre-test Possible points 29

Unit 3 Part I Proportions (MELOTT)

Show work on *ALL* problems

1. If $\frac{1}{2}$ gallon of paint covers $\frac{1}{6}$ of a wall, then how much paint is needed for the entire wall? Don't forget your units!

2. If a person walks $\frac{1}{2}$ mile in each $\frac{1}{4}$ hour, compute the unit rate. UNITS!

3. The table below gives the price for different numbers of books. Do the numbers in the table represent a proportional relationship? You can test this by checking for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

Number of Books	Price
x	y
1	3
3	9
4	12
7	18

Price/# books= $3/1 book (fill in the blanks below)

Price/#books= $ / 3 books=(reduce) $ / books

Price/#books= $ / 4 books=(reduce) $ / books

Price/#books= $ / 7 books=(reduce) $ / books

Which of the following is a true statement?
Yes this is a proportional relationship b/c all fractions (are in the y/x format) and reduce to 3/1 **OR**

No, this is not a proportional relationship b/c not all fractions (are in the y/x format) nor reduce to 3/1.

4. If total cost *t* is proportional to the number *n* of items purchased at a constant price *p*, the relationship between the total cost and the number of items can be expressed as $t = pn$. Use this theory to test if proportional relationship exists in the following table:

Number of Shirts (n)	Total Cost (t)
2	58
4	116
5	125

t= p*n

58 = p*2 (solve using inverse operations)

p=

116= p*4 (solve using inverse operations)

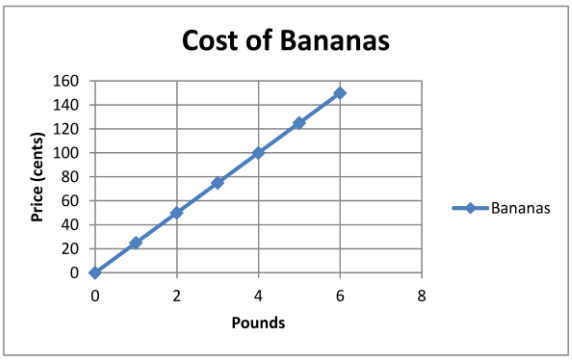
P=

125=p*5 (solve using inverse operations)

P=

Which of the following is a true statement?
Yes this is a proportional relationship b/c all fractions (are in the t/n format) and reduce to the same number **OR**
No, this is not a proportional relationship b/c not all fractions (are in the t/n format) nor reduce to the same number.

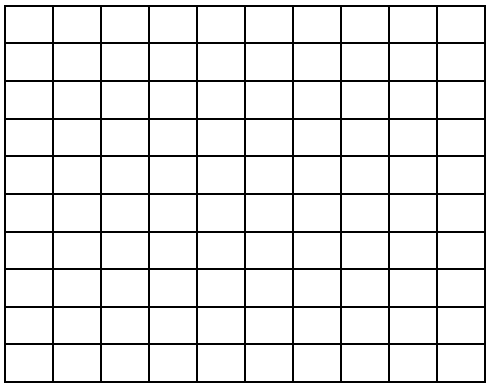
5. The graph below represents the price of the bananas at one store. What is the constant of proportionality (how much do you pay per pound)?



6. The price of grapes at another store can be determined by the equation:
$P = \$0.35n$, where P is the price and n is the number of grapes. What is the constant of proportionality (unit rate)—how much do you pay per pound?

7. A student is making Chex mix. Create a graph to determine if the quantities of Chex and pretzels are proportional for each serving size listed in the table.

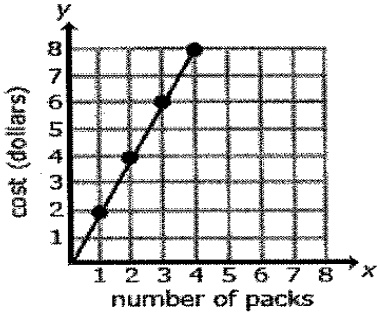
Cups of Chex (x)	1	2	3	4
Cups of pretzels (y)	2	4	6	8



If the quantities are proportional, what is the constant of proportionality or unit rate that defines the relationship?

Explain how the constant of proportionality was determined and how it relates to both the table and graph.

8. The graph below shows the relationship between the number of packs of gum bought at a store and the total cost, in dollars, for the gum.



Select **each** statement about the graph that is true. Select **all** that apply.

a) The point (0,0) shows the cost is \$0 for zero packs of gum.

b) The point (2,1) shows the cost is \$2.00 for 1 pack of gum.

c) The point (3,6) shows that 3 packs of gum cost \$6.00.

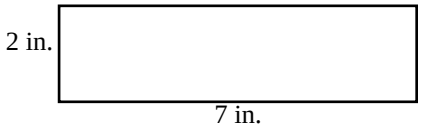
d) The point (2,4) shows that the cost is \$4.00 for 2 packs of gum.

e) The point (4,8) shows that 8 packs of gum cost \$4.00

Equation:

9/10. Sally has a recipe that needs $\frac{3}{4}$ teaspoon of butter for every 2 cups of milk. If Sally increases the amount of milk to 3 cups of milk, how many teaspoons of butter are needed?
Create a verbal model first!

10. If the rectangle below is enlarged using a scale factor of 1.5, what will be the perimeter and area of the new rectangle?



12. The directions on a bottle of bleach say, "mix one cup of bleach with one gallon of water to make a cleaning solution." The ratio of bleach to water is 1 to 16.

Part A
How many **cups** of water should be mixed with ¼ cup of bleach to make the cleaning solution?

Part B
How many **fluid ounces** of bleach should be mixed with 80 fluid ounces of water to make the cleaning solution?

Part C
A bottle contains 1 quart of bleach.
What is the **total number of quarts of cleaning solution** that can be made using the entire bottle of bleach?

Part D
A spray bottle holds up to 1 cup of the cleaning solution.
When the spray bottle is full, what fraction of the cleaning solution is bleach?