

~~Project 9/20~~

Problem Set #1 9/20



### Agenda:

1) Bell Ringer: page 29

2) share answers to HW

3) Unit 1: Lesson 5: Proportional Relationships in graphs

EQ: How do you know if two quantities are proportional by looking at a graph?

4) Homework: lesson 5 problems 1-3

(pgs 33-34  
in workbook)

# "Unit Price Project"

Name: \_\_\_\_\_ date: \_\_\_\_\_  
 Mrs. Bennett Math 7

## Student Task Sheet

In the ratios and proportions unit we have been studying, you have learned to find unit rates and unit prices. You have also learned to compare unit prices.

In this assignment I am asking you to calculate the unit price of 10 different household items. Display your items on a poster. Next to each item you should include your calculations to find each unit price. Your poster should include a title as well. To go along with your poster you must write a paragraph detailing your findings? Some things you may want to include in your paragraph are which item had the lowest unit price and which item had the highest unit price. You could also compare different brands of the same item. For example, maybe Tide detergent is less expensive per ounce than All detergent. You may want to write about the usefulness of comparing unit prices.

You will be graded on:

Completion:

- Poster with title and 10 objects
- Calculations are included for each item
- Paragraph summarizing findings

Mathematical Concepts: *Division*

- ~~Proportions~~ showing all calculations
- Correct mathematical work
- Paragraph correctly compares items

Presentation:

- Title
- Labels
- ~~Proportions~~ *work* are shown
- Paragraph has no spelling or grammatical errors

Timeliness:

- Poster is due 2 weeks from today
- Due date *9/30/15*

Homework

1. Joseph earns \$15 for every lawn he mows. Is the amount of money he earns proportional to the number of lawns he mows? Make a table to help you identify the type of relationship.

Number of Lawns Mowed				
Earnings (\$)				

2. At the end of the summer, Caitlin had saved \$120 from her summer job. This was her initial deposit into a new savings account at the bank. As the school year starts, Caitlin is going to deposit another \$5 each week from her allowance. Is her account balance proportional to the number of weeks of deposits? Use the table below. Explain your reasoning.

Time (in weeks)	0	1	2		
Account Balance (\$)	120	125	130		

3. Lucas and Brianna read three books each last month. The table shows the number of pages in each book and the length of time it took to read the entire book.

Pages Lucas Read	208	156	234
Time (hours)	8	6	9

Pages Brianna Read	168	120	348
Time (hours)	6	4	12

- How many observations can you make about any similarities or difference that exist between the reading rates of the two students.
- Both Lucas and Brianna had specific reading goals they needed to accomplish. What different strategies did each person employ in reaching those goals?

a) Lucas

$$208 \div 8 = 26$$

$$156 \div 6 = 26$$

$$234 \div 9 = 26$$

Brianna

$$168 \div 6 = 28$$

$$120 \div 4 = 30$$

$$348 \div 12 = 29$$

## Lesson 5: Identifying Proportional and Non-Proportional Relationships in Graphs

### Classwork

#### Opening Exercise

Isaiah sold candy bars to help raise money for his scouting troop. The table shows the amount of candy he sold to the money he received.

Is the amount of candy bars sold proportional to the money Isaiah received? How do you know?

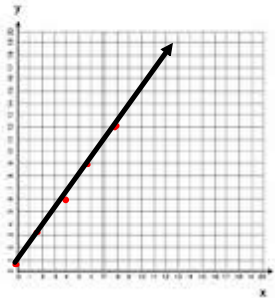
no → not a constant  
Rate

x Candy Bars Sold	y Money Received (\$)
2	3
4	5
8	9
12	12

$$\begin{aligned} 3 \div 2 &= \$1.50 \\ 5 \div 4 &= \$1.25 \\ 9 \div 8 &= \$1.13 \\ 12 \div 12 &= \$1 \end{aligned}$$

Example 1: From a Table to Graph

$x$	$y$
2	3
4	6
6	9
8	12
0	0





Important Note:

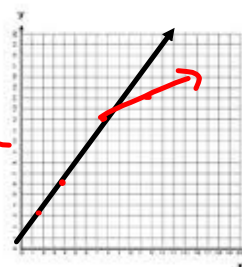
Characteristics of graphs of proportional relationships:

- ① straight line
- ② go through  $(0,0)$  origin

Example 2

$x$	$y$
2	3
4	6
8	12
12	14

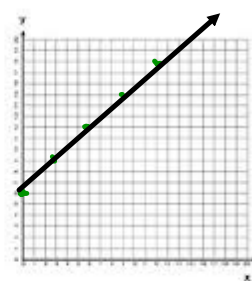
not  
proportional  
→ not a  
straight  
line



Example 3

$x$	$y$
0	6
3	9
6	12
9	15
12	18

not proportional  
 → does not  
 hit  $(0,0)$



Similarities with Example 1:

Differences from Example 1:

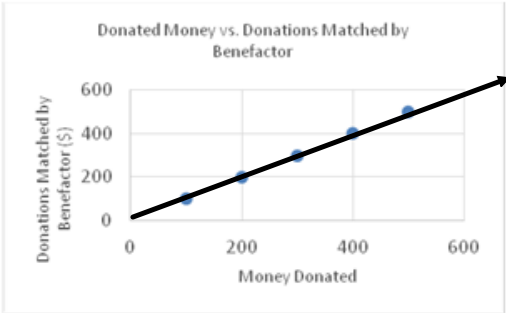
Lesson Summary:

When two proportional quantities are graphed on a coordinate plane, the points lie on a straight line that passes through the origin.

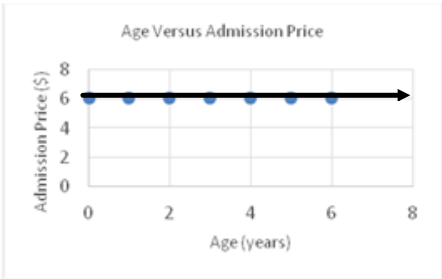
Homework

1. Determine whether or not the following graphs represent two quantities that are proportional to each other. Give reasoning.

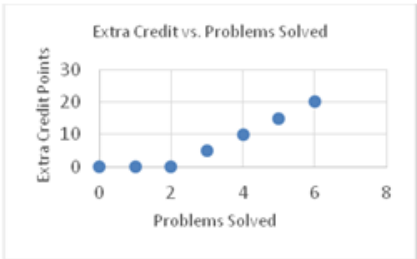
a.



b.



c.



2. Create a table and a graph for the ratios 2:22, 3 to 15 and 1/11. Does the graph show that the two quantities are proportional to each other? Explain why or why not.

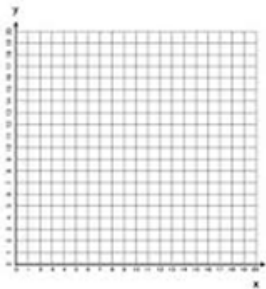
<i>x</i>	<i>y</i>



3. Graph the following tables and identify if the two quantities are proportional to each other on the graph.

a

$x$	$y$
3	1
6	2
9	3
12	4



b.

$x$	$y$
1	4
2	5
3	6
4	7

