Homework #26 – Identifying Proportional Relationships and Intro to Constant of Proportionality

Directions: In each table determine if y is proportional to x. Explain why or why not.

1) Proportional

$\frac{y}{x}$

x	y	
3	12	$\frac{12}{3}=\frac{4}{1}$
5	20	$\frac{20}{5}=\frac{4}{1}$
2	8	$\frac{8}{2}=\frac{4}{1}$
8	32	$\frac{32}{8}=\frac{4}{1}$

2) Not Proportional

$\frac{y}{x}$

x	y	
3	15	$\frac{15}{3}=5$
4	17	$\frac{17}{4}=4.25$
5	19	
6	21	

3) Proportional

$\frac{y}{x}$

x	y	
6	4	$\frac{4}{6}=\frac{2}{3}$
9	6	$\frac{6}{9}=\frac{2}{3}$
12	8	$\frac{8}{12}=\frac{2}{3}$
3	2	$\frac{2}{3}=\frac{2}{3}$

4) Kayla made observations about the selling price of a new brand of coffee that sold in three different sized bags. She recorded those observations in the following table:

Ounces of Coffee	6	8	16
Price in Dollars	$2.10	$2.80	$5.60

Is the price proportional to the amount of coffee? Why or why not? If this is proportional, state the constant of proportionality (k).

$\frac{y}{x}$ $\frac{\$}{oz}$ $\frac{\$2.10}{6}=\frac{\$0.35}{1}$ $\frac{\$2.80}{8}=\frac{\$0.35}{1}$ $\frac{\$5.60}{16}=\frac{\$0.35}{1}$

Proportional Since all unit rates are equal.

$K=0.35$

5) You and your friends go to the movies. It costs $9.50 for one person, $19 if two people go and it costs $28 if three people go. Is the number of people who go to the movies proportional to the cost? Explain. If it is a proportional relationship, state the constant of proportionality.

$\frac{\$}{\text{People}}$ $\frac{9.50}{1} = 9.50$ $\frac{\$19}{2} = \frac{9.50}{1}$ $\frac{\$28}{3} = \frac{\$9.33}{1}$

Unit Rates are not equal.

Proportional or Not proportional (circle one). k = _____

6) The table below shows the relationship between the number of cars sold and money earned for a car salesperson. Is the money earned proportional to the number of cars sold? Explain why or why not. If this is a proportional relationship, state the constant of proportionality (k).

$\frac{Y}{X}$ $\frac{250}{1} = 250$ $\frac{600}{2} = \frac{300}{1}$

X: Number of Cars Sold	Y: Money Earned
1	250
2	600
3	950
4	1076
5	1555

Not Proportional. Unit Rates are not equal.

Review: Which is the better buy: a 24 pack of water for $4.99 or a 36 pack of water for $7.25? Show all work and explain.

24-Pack

$\frac{\$}{\text{amount}}$ $\frac{\$4.99}{24} = \frac{\$0.21}{1}$

36-Pack

$\frac{\$7.25}{36} = \frac{\$0.20}{1}$

36 pack is the better buy b/c it has the lower unit price.