Unit: Proportional Relationships
Student Handout 1

Name _____

Date _____Pd_____

CONSTANT OF PROPORTIONALITY

Liam is making breakfast for dinner using a pancake mix.

a. How many cups of mix will he use for 12 pancakes? _____
b. How many cups of mix will he use for 24 pancakes? _____
c. What is the ratio of cups of mix to servings?

CUPS OF MIX	# OF PANCAKES
1	12
2	24

PROPORTIONAL RELATIONSHIPS

- A relationship is proportional when the ratio of y over x is _____.

CONSTANT OF PROPORTIONALITY

- The _____ of the ratio of two proportional quantities.
- It is represented by the equation _____, where:
  - y represents: _____
  - x represents: _____
- Use the equation _____ to represent proportional relationships.

For 1-3, find the ratio of $\frac{y}{x}$ to determine if each table represents a proportional relationship.

1.

x	y	$\frac{y}{x}$
1	6	
2	12	
3	18	
4	24	

k = _____

2.

x	y	$\frac{y}{x}$
2	10	
3	15	
4	20	
5	25	

k = _____

3.

x	y	$\frac{y}{x}$
8	4	
10	5	
12	6	
14	7	

k = _____

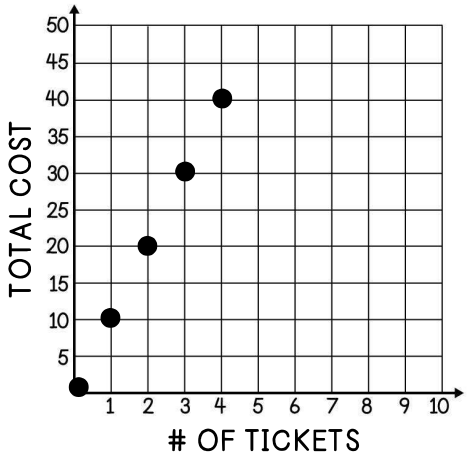
4. The cost of 6 pounds of almonds is $23.28. What is the constant of proportionality that relates y, the cost in dollars, to x, the number of pounds?

k = _____

5. A car travels 220 miles in 4 hours. What is the constant of proportionality that relates y, the total number of miles, to x, the number of hours?

k = _____

6. Use the graph below to complete the table and answer the following questions.

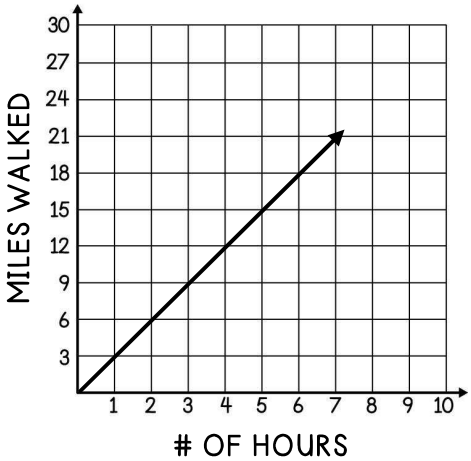


x	y

a. k = _____

b. What does the point (1, 10) represent in the relationship?

7. Use the graph below to complete the table and answer the following questions.



x	y

a. k = _____

b. What does the point (1, 3) represent in the relationship?

Use your understanding of the constant of proportionality to answer the questions below.

8. While training for a marathon, Keith's watch reported the number of calories he had burned at each mile marker. The data is shown below.

# OF MILES	1	2	3	4	5
# OF CALORIES BURNED	117	234	351	468	585

a. Is the number of calories proportional to the number of miles? Justify your thinking.

b. What is the constant of proportionality that relates y, the number of calories burned, to x, the number of miles?

c. Write an equation to represent the relationship between the number of miles and the calories burned.

d. The next day, Keith ran 7 miles. How many calories did he burn?

e. If Keith's watch reported that he burned 1,170 calories, how many miles did Keith run that day?

Summarize today's lesson:

Unit: Proportional Relationships
Homework 1

Name _____

Date _____Pd_____

CONSTANT OF PROPORTIONALITY

Determine the constant of proportionality from each representation below.

1.

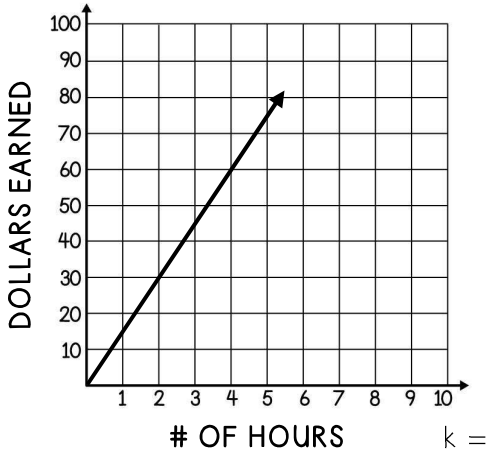
x	8	12	16	20	24
y	2	3	4	5	6

k = _____

2. There are 108 feet in 36 yards. What is the constant of proportionality that relates y, the number of yards to x, the number of feet?

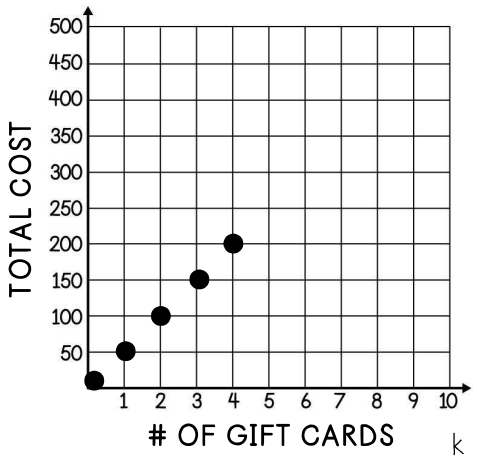
k = _____

3.



k = _____

4.



k = _____

Use the situation below to complete the table and answer the questions.

A gym employee earns the same amount each month. After working for three months, he earned $4,500. Complete the table to determine how much money he will make over a five-month period.

MONTH	TOTAL EARNINGS	$\frac{y}{x}$
1		
2		
3	$4,500	
4		
5		

5. Is the relationship proportional? Explain your thinking.

6. What is the constant of proportionality?

7. Write an equation to represent the situation.

8. If his pay rate remains the same, how much will he earn after working 7 months?

9. After how many months will the gym employee earn $15,000?