



Objective

Constant of Proportionality in Multiple Representations

Warm-Up



Solve each equation.

1. $5p = 2.5$

2. $\frac{1}{3}j = 9$

3. $0.12k = 10.08$

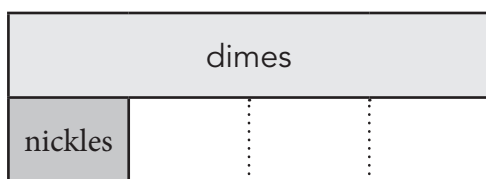
4. $8k = 0$

GETTING STARTED

Penny's Nickels Are a Quarter of Her Dimes

Penny collects only nickels and dimes. She has one-quarter as many nickels as dimes.

A diagram can represent this problem situation.



All together she has 40 coins. How much money does she have?

1. Explain how you can use the diagram to solve the problem.

Determine the solution.

2. Write an equation to represent the proportional relationship between:

a. the number of nickels and the number of dimes.

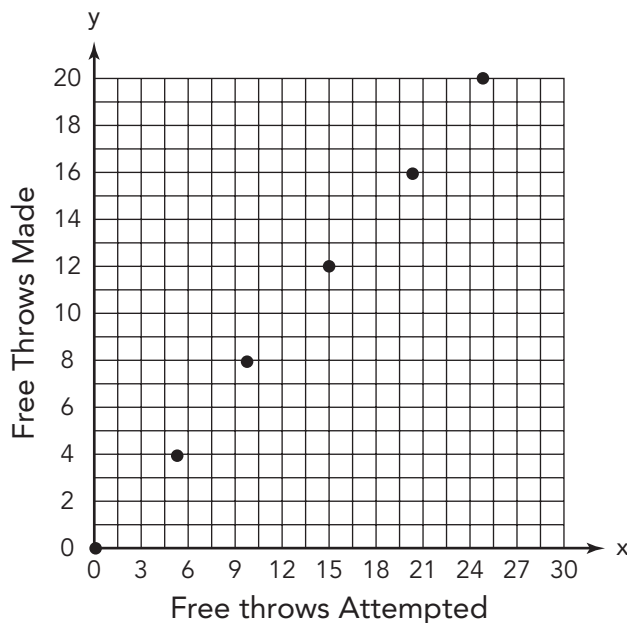
b. the number of dimes and the total number of coins.

c. the number of nickels and the total number of coins.

3. Identify the constant of proportionality in each proportional relationship described in Question 2.



The graph shows Natasha's total number of free throw attempts and the total number of free throws made.



1. Explain how you know the graph represents a relationship that is proportional.
2. Determine the constant of proportionality and describe what it represents in this problem situation.
3. If Natasha attempted 30 free throws, how many would she probably make? First, use your graph to estimate the answer. Then, verify your answer by using an equation.



Another example of a proportional relationship is the relationship between the number of hours a worker works and his or her wages earned in dollars.

The amount of money (m) Shaylah earns varies directly with the number of hours (h) she works. The equation describing this relationship is $m = 9.25h$.

1. What does the constant of proportionality represent in this situation?

2. Complete the table based on the equation given. Include the constant of proportionality in the table.

Hours Worked	Earnings (dollars)
0	
	112.85
40	

During the summer, Fernando works as a movie attendant.
The number of hours he works varies each week.

3. Write an equation to represent this situation. Then complete the table based on your equation and include the constant of proportionality.

Hours Worked	Earnings (dollars)
3	26.88

4. What is the constant of proportionality? What does it mean in this problem situation?

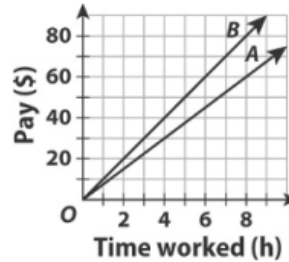


LESSON 3.4a
Minding Your Ps and Qs



Objective Constant of Proportionality in Multiple Representations

The graph shows the relationship between hours worked and money earned (in dollars) for two employees, A and B.



- Suppose both employees work the same amount of time. Determine which employee earns more money. Explain.

- Using the pay rates shown, determine the amount of money each employee earns for 15 hours of work.

- The pay rate for employee C is less than the pay rate for employee B and greater than the pay rate for employee A. Write an equation for the possible pay y in dollars that employee C earns working x hours.

- Two companies offer digital cable television as described below.

Company A: \$39.99 per month with no installation fee

Company B: \$34.99 per month with a \$50 installation fee

For each company, tell whether the relationship between months of service and total cost is a proportional relationship. Explain why or why not.

The table shows the relationship between the length and width of 5 different U.S. flags.

Width (ft), x	1.5	4.5	8	10.5	12.5
Length (ft), y	3	9	16	21	25

- Is the relationship is a proportional relationship? If so, write an equation of the form $y = kx$ for the relationship.

- Explain how to determine whether a relationship shown in a table is a proportional relationship.
