ALBERT

Name _____ Date _____

Constant of Proportionality Worksheet

Grade 7 · Common Core 7.RP.A.2b

> Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

Practice

Builds the skill step by step.

1. Find the constant of proportionality k in y = kx for the table.

x	y
1	4
2	8
5	20

2. What is the constant of proportionality in y = 7x?

3. Apples cost $1.25 each. What is the constant of proportionality between cost and the number of apples?

4. A proportional graph passes through (1, 6). What is the constant of proportionality?

   A. 6

   B. 1

   C. $\frac{1}{6}$

   D. 7

5. Find k for the table.

x	y
4	10
6	15
8	20

6. Write an equation y = kx for the table in problem 1.

7. A car travels 180 miles in 3 hours at a constant speed. What is the constant of proportionality between miles and hours?

8. Which equation has a constant of proportionality of $\frac{1}{2}$?

   A. $y = x + \frac{1}{2}$

   B. $y = 2x$

   C. $y = \frac{1}{2}x$

   D. $y = \frac{1}{2}$

9. Find k for the table.

x	y
6	2
9	3
12	4

10. Pencils cost $0.40 each. Write an equation for the cost c of p pencils.

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On Level

Grade-level practice.

1. A proportional graph passes through (4, 14). What is the constant of proportionality?

2. Find k for the table, then write the equation.

x	y
5	3
10	6
20	12

3. In a proportional relationship, the point (1, r) on the graph tells you…

   A. the unit rate

   B. the y-intercept

   C. where the line starts

   D. nothing useful

4. A recipe uses $\frac{3}{4}$ cup of sugar for every 2 cups of flour. What is the constant of proportionality for sugar per cup of flour?

5. A worker earns $87 for 6 hours. Write an equation for earnings e after h hours.

6. In y = 2.4x, what does the point (5, y) have as its y-value?

7. Which table has a constant of proportionality of 3?

   A. x: 2, 4; y: 5, 7

   B. x: 3, 6; y: 1, 2

   C. x: 2, 4; y: 6, 12

   D. x: 1, 2; y: 3, 5

8. A printer prints 45 pages in 1.5 minutes. What is the constant of proportionality in pages per minute?

9. A map has 2 inches for every 25 miles. Write an equation for miles m in terms of inches i.

10. Find k for the table.

x	y
4	5
8	10
12	15

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Challenge

Multi-step and word problems that stretch it.

1. Two stores sell rice. Store A: $y = 1.8x$. Store B: the table shows 3 pounds for $5.70 and 5 pounds for $9.50. Which store charges less per pound, and by how much?

2. A graph of a proportional relationship passes through (0, 0) and (6, 4). What is the equation?

   A. $y = \frac{3}{2}x$

   B. $y = 4x$

   C. $y = \frac{2}{3}x$

   D. $y = 6x$

3. The cost of fabric is proportional to its length. 2.5 yards cost $18.75. How much do 4 yards cost?

4. In $y = kx$, the point (8, 6) is on the graph. Find y when $x = 20$.

5. A car uses 3 gallons of gas for 84 miles. Write an equation for gallons g in terms of miles m, and find the gallons for 210 miles.

6. Runner A: d = 0.15t. Runner B covers 2 miles in 12 minutes. (d is miles, t is minutes.) Which is true?

   A. Runner A is faster.

   B. They run at the same speed.

   C. Runner B is faster.

   D. You cannot compare them.

7. Mia says the constant of proportionality for the table x: 2, 4 and y: 10, 20 is $\frac{1}{5}$. What mistake did she make, and what is k?

8. Write the constant of proportionality for each: (a) y = 0.5x (b) a graph through (3, 12) (c) 9 pens for $6.75, cost per pen.

9. A tree grows in proportion to time: 1.2 feet in 4 months. How many months does it take to grow 3 feet?

10. For a diagram where every 2 blue tiles go with 5 white tiles, write an equation for white tiles w in terms of blue tiles b, and find w when b = 18.