

Proportional Relationships

7.RP.A.2

Name _____ Date _____

Show your work. The constant of proportionality k is the unit rate y/x . A relationship is proportional only when every pair of values has the same ratio.

1. In a proportional relationship, $y = 12$ when $x = 3$. Find the constant of proportionality k .
2. The table shows a proportional relationship. Find k .

x	2	5	8
y	10	25	40

3. A relationship is given by $y = 7x$. What is the constant of proportionality?
4. Decide whether the table represents a proportional relationship. Explain.

x	1	2	3
y	4	8	15

5. A line passes through the origin on a graph of distance vs. time. It also passes through the point (4, 18). Find the constant of proportionality.
6. A proportional relationship has $k = 6$. Write its equation, then find y when $x = 9$.
7. Which equation represents a proportional relationship?

A) $y = 2x + 3$
B) $y = 5x$

C) $y = x^2$
D) $y = \frac{8}{x}$
8. The cost c of n notebooks is proportional, and 5 notebooks cost \$6. Find k and write the equation for c in terms of n .
9. A graph of a proportional relationship passes through (3, 2). What is k , and through what other labeled point must the line pass when $x = 9$?
10. Two machines fill bottles. Machine A fills $y = 15x$ bottles in x minutes. Machine B fills 90 bottles in 5 minutes. Which machine has the larger constant of proportionality?

11. On a proportional graph, the point $(1, k)$ always lies on the line. For the relationship through the origin and $(6, 9)$, what are the coordinates of that point?
12. A car travels at a constant rate, going 200 miles on 8 gallons of gas. Write an equation relating distance d to gallons g , then find how far it goes on 14 gallons.
13. A printing service charges proportionally to the number of flyers. The graph passes through the origin and through $(50, 20)$. Find the cost per flyer, then the cost of 325 flyers.