# Direct Variation

Homework

Name **Key**

Date _____ Period _____

1. Which of these graphs show direct variation?

   a. (circled)   b.   c.
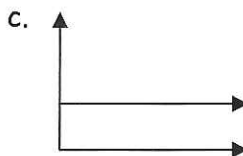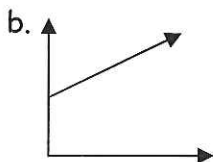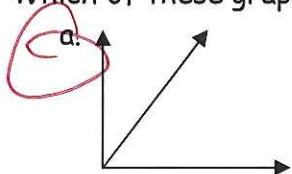
2. Complete the tables so that the ordered pairs show a direct variation.

a. $k=12$

x	y
2 ×12 24	24
4 ×12 48	48
7 ×12	**84**
12 ×12	144

b. $k=-4$

x	y
-3 ×-4	12
8 ·-4	**-32**
15 ·-4	-60
19 ·-4	-76

c. $k=6.5$

x	y
1	**6.5**
5 ×6.5	32.5
7	45.5
8	**52**

3. The amount a spring stretches varies directly as the weight of the object attached to it. An 8-ounce weight stretches a spring 10 cm. How much weight will stretch the spring 15 cm?

Answer **12-ounce**

$y=kx \quad k=\frac{y}{x}$

$k=\frac{10}{8}=1.25$

$15=1.25x$

$\frac{15}{1.25}=\frac{1.25x}{1.25}$

$x=12$ ounce

| W	8	x
S	10	15

4. The distance between two towns on a map varies directly with the actual distance between the towns. Seven and a half inches on the map represents 150 miles. What is the actual distance represented by 11 inches on the map?

Answer **220 miles**

$y=7.5 \quad x=150$

$k=\frac{7.5}{150}=.05$

$\frac{11}{.05}=\frac{.05x}{.05}$

$x=220$ miles

Actual x	150	x
map y	7.5	11

In each of the following problems, the value of y varies directly with x. Write the direct variation equation.

$y=kx$

5. y = 9, x = 3

$k=\frac{9}{3}=3 \quad \boxed{y=3x}$

6. y = -4, x -1

$k=\frac{-4}{-1}=4 \quad \boxed{y=4x}$

7. y = 8, x = 4

$k=\frac{8}{4}=2 \quad \boxed{y=2x}$

8. y = 8, x = 12

$k=\frac{8}{12}=\frac{2}{3}$

$\boxed{y=\frac{2}{3}x}$

9. y = 16, x = 12

$k=\frac{16}{12}=\frac{4}{3}$

$\boxed{y=\frac{4}{3}x}$

10. $y = \frac{10}{7}$, x = 5

$k=\frac{\frac{10}{7}}{5} \rightarrow \frac{10}{7}\cdot\frac{1}{5}=\frac{10}{35}=\frac{2}{7}$

$\boxed{y=\frac{2}{7}x}$