PRACTICE

In the following tables y is proportional to x. Write an equation that relates y to x.

1.

$k = 4$

x	y
2	8
5	20
7	28
11	44

$\frac{8}{2}$

$\boxed{y = 4x}$

2.

$k = \frac{2}{5}$

x	y
10	4
7.5	3
15	6
25	10

$\frac{4}{10}$

or $k = 0.4$

$\boxed{y = \frac{2}{5}x \text{ or } y = 0.4x}$

3. $k = \frac{3}{4}$ or 0.75

x	0	4	8	24
y	0	3	6	18

$\boxed{y = \frac{3}{4}x \text{ or } y = 0.75x}$

Use the graph to write an equation that relates y to x.

4.

(2,6)

$k = \frac{6}{2} = \frac{3}{1}$

$\boxed{y = 3x}$

5.

$k = \frac{2}{12} = \frac{1}{6}$ or $0.1\overline{6}$

(12,2)

$\boxed{y = \frac{1}{6}x \text{ or } y = 0.1\overline{6}x}$

6.

$k = \frac{15}{20} = \frac{3}{4}$ or 0.75

(20,15)

$\boxed{y = \frac{3}{4}x \text{ or } y = 0.75x}$

Write an equation that models the relationship. Fill in the table.

7. Johnny Appleseed plants 21 apple trees in 3 hours.

Time (hours)	Trees Planted
0	0
3	21
5	35

$k = \frac{21}{3} = \frac{7}{1}$

$\boxed{y = 7x}$

or

$t = 7h$

trees   hours

8. Johnny sells 12 glasses of apple juice every 6 minutes.

Time (minutes)	Glasses Sold
1	2
6	12
14	28

$k = \frac{12}{6} = \frac{2}{1}$

$\boxed{y = 2x}$

or

$g = 2m$

glasses   minutes

9. Apples costs \$6.75 for 3 pounds.

Apples (pounds)	Cost (dollars)
0	0
1	2.25
2	4.50

$k = \frac{6.75}{3}$

$k = 2.25$

$\boxed{y = 2.25x}$

or

$C = 2.25p$

cost   pound

State the constant of proportionality (unit rate) for each equation.

10. $y = 6x$

$k = \underline{6}$

11. $y = \frac{4}{3}x$

$k = \underline{\frac{4}{3}}$

12. $h = 2.75t$

$k = \underline{2.75}$

Use the graph to answer the questions.

13. Mr. Bean normally drives a scooter. He rents a car to go on vacation.

   a. Find the constant of proportionality. $k = $ $\frac{60}{4} = \frac{15}{1} = 15$

(4,60)

cost (dollars) / Time Rented (days)

   b. Write an equation that models the relationship between days the car is rented and cost.
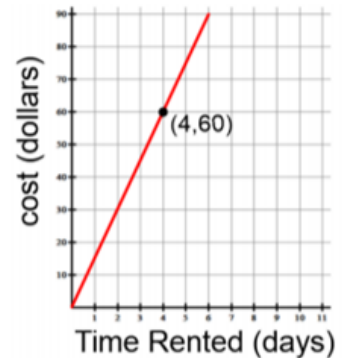
$$y = 15x \quad \text{or} \quad c = 15d$$

   c. Use a sentence to explain what the constant of proportionality means in this situation.

The rental car costs 15 dollars per day.

Time (days)	Cost (dollars)
1	15
2	30
3	45
12	180

   d. Fill in the table.

   e. Explain what the point $(4, 60)$ means in this situation.

4 days of rental car costs 60 dollars

Use the table to answer the questions.

14. Booster club is selling Championship T-shirts. The money made is proportional to the t-shirts sold.

T-shirts sold (#)	1	4	8	9
Money made ($)	22	88	176	198

   a. Fill in the table. $\frac{176}{8} = 22$

   b. Write an equation that models the relationship between t-shirts sold and money made.

$$m = \underline{22}\, t$$

   c. How much does the booster club make from selling 1 shirt?

\#22 per shirt

   d. If the booster club makes $374 from selling championship t-shirts, how many shirts did they sell?

$$374 \div 22 = \boxed{17 \text{ shirts}}$$