NAME

Module 16 Solving Rational Equations
Lesson 2 Solving Problems Using Direct
Variation

Does *y* vary directly as *x*? If so, find the constant of variation and write the direct variation function.

1.

x	y
1	–6
2	12
6	36

no

2.

x	y
$-\frac{3}{5}$	$-\frac{12}{5}$
$\frac{1}{2}$	2
$\frac{2}{3}$	$\frac{8}{3}$

yes; $k = 4$; $\frac{y}{x} = 4$

3.

x	y
–42	–6
–35	5
21	–3

no

4.

x	y
–9	–12
15	20
21	28

yes; $k = \frac{4}{3}$; $\frac{y}{x} = \frac{4}{3}$

Solve.

5. The variable *y* varies directly as *x*: *y* is 4 when *x* is 6. Find *y* when *x* is 15.

y = 10

6. The variable *y* varies directly as *x*: *y* is –2 when *x* is 12. Find *x* when *y* is 30.

x = –180

7. The variable *y* varies directly as *x*: *y* is –8 when *x* is 10. Find *x* when *y* is –2.

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

8. The variable *y* varies directly as *x*: *y* is 20 when *x* is 6. Find *x* when *y* is 12.

x = 3.6

Solve using direct variation.

9. Marcus can walk two miles in 20 minutes. How long will it take him to walk 3.5 miles?

35 minutes

10. Rodriguez exchanged 300 American dollars for 190 British pounds and spent 152 pounds while in Great Britain. He then exchanged the amount he had left for American dollars. How many American dollars did he receive?

$60

11. If Krista receives $150 commission for $2,500 sales, how much commission will she receive for $4,500 in sales?

$270

13. If 30 gallons of water are used every five minutes in a public water fountain, how many gallons are used in 14 minutes?

84 gallons

15. If $1\frac{3}{4}$ gallons of paint are needed to paint a room with a wall area of 266 ft^2, what square area can be painted with two gallons of paint?

304 ft^2

17. If Phillip travels 294 miles in $5\frac{1}{4}$ hours, how many hours will it take him to travel 392 miles?

7 hours

19. If Linda's pay for six hours work is $75, how much will she make in 16 hours?

$200

12. Three cups of flour are required to make a cake that will feed 20 people. How many cups of flour are needed to bake a cake that will feed 32 people?

$\frac{24}{5}$ or 4.8 cups

14. If Lisa can talk 40 minutes for $2.40, what will it cost her to talk 75 minutes?

$4.50

16. If tickets cost $441 for 18 people, how much will tickets cost for 24 people?

$588

18. If Clint's heart beats 50 times in $\frac{2}{3}$ minute, how many times will it beat in one minute?

75 times

20. The circumference of a circle is found by the formula $C = \pi d$, where d is the diameter of the circle. Does circumference vary directly as diameter? If so, what is the constant of variation?

yes; π