

Written Exercises

In each of the following, y varies directly as x .

- y is 54 when x is 9.
Find y when x is 3.
- y is -36 when x is -4.
Find y when x is 7.
- y is 27 when x is -3.
Find y when x is 18.
- y is -10 when x is -4.
Find y when x is -6.
- y is 100 when x is 60.
When y is 80, what is x ?
- y is 9 when x is 12.
When y is 48, what is x ?

Determine whether y varies directly as x . If so, find the constant of variation.

7.

x	y
5	20
6	24
-3	-12

8.

x	y
-75	-15
-60	-12
50	10

9.

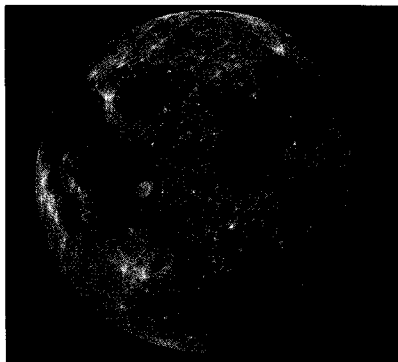
x	y
7	15
10	18
15	23

10.

x	y
-30	3
-20	2
50	-5

Solve each problem.

11. The cost of chocolates varies directly as the number of pounds. If 2 lb of chocolates cost \$4.60, find the cost of 5 lb of chocolates.
12. The weight of a metal rod varies directly as its length. If a 12-ft rod weighs 18 lb, how much does a 20-ft rod weigh?
13. The distance a car travels varies directly as the time traveled, but only if the rate of travel is constant. If a car travels 330 mi in 6 h, how far does it travel in 8 h? (Assume rate is constant.)
14. The property tax on a house varies directly as the assessed value of the house. The tax on a house assessed at \$20,000 is \$4,000. Find the taxes on a house assessed at \$35,000.
15. At a given time and place, the height of a vertical pole varies directly as the length of its shadow. A 6-m pole casts a 9-m shadow. Find the height of a building that casts a 60-m shadow.
16. The number of kilograms of water in a person's body varies directly as a person's mass. A person with a mass of 100 kg contains 75 kg of water. How many kilograms of water are in a person with a mass of 96 kg?
17. Gas consumption of a car is approximately proportional to the distance traveled. A car uses 40 liters of gas to travel 240 km. About how much gas will the car use to travel 300 km?
18. The weight of an object on the moon varies directly as its weight on earth. On earth, an object weighs 125 lb. But on the moon it weighs 20 lb. What would an 80-pound crate weigh on the moon?
19. y varies directly as x^2 . If y is 64 when x is 7, find y when x is 3.
20. y varies directly as x^2 . If y is 49 when x is 12, find y when x is 9.
21. The distance that a falling object travels varies directly as the square of the time it falls. A ball falls 320 m in 8 s. How far will it fall in 18 s?
22. The distance needed to stop a car varies directly as the square of its speed. It requires 173 m to stop a car traveling at 82 km/h. What distance is required to stop a car traveling 88 km/h?



Mixed Review

Solve. 3.2, 3.3, 4.6

1. $5y = -80$ =
2. $-6x = 72$
3. $-\frac{2}{3}x = 16$
4. $-\frac{3}{5}y = -45$ =
5. $4n + 15 = 7$
6. $3.2x = 0.75 - 0.7x$
7. Two cars traveled in opposite directions from the same starting point. The rate of one car was 15 km/h faster than the other car. After 2 h, the cars were 240 km apart. Find the rate of each car. 9.4