

Practice 5-6

Inverse Variation

Suppose y varies inversely with x . Write an equation for each inverse variation.

1. $x = 9$ when $y = 6$
2. $x = 3.6$ when $y = 5$
3. $x = \frac{3}{4}$ when $y = \frac{2}{9}$
4. $x = 7$ when $y = 13$
5. $x = 8$ when $y = 9$
6. $x = 4.9$ when $y = 0.8$
7. $x = 11$ when $y = 44$
8. $y = 8$ when $x = 9.5$
9. $y = 12$ when $x = \frac{5}{6}$

Each pair of points is on the graph of an inverse variation. Find the missing value.

10. $(5, 8)$ and $(4, m)$
11. $(16, 5)$ and $(10, h)$
12. $(14, 8)$ and $(c, 7)$
13. $(3, 18)$ and $(a, 27)$
14. $(4, 28)$ and $(3, p)$
15. $(100, 25)$ and $(4, a)$
16. $(x, 7)$ and $(2, 14)$
17. $(\frac{2}{5}, \frac{3}{2})$ and $(k, \frac{5}{2})$
18. $(16, 3)$ and $(g, 24)$
19. $(2.4, 19.8)$ and $(h, 13.2)$
20. $(12.4, 6.6)$ and $(f, 8.8)$
21. $(3.2, k)$ and $(9.2, 0.8)$
22. $(18, 24)$ and $(72, v)$
23. $(17, 0.9)$ and $(5.1, x)$
24. $(\frac{3}{4}, y)$ and $(\frac{2}{3}, 18)$

Explain whether each situation represents a direct variation or an inverse variation.

25. The cost of a \$50 birthday gift is split among some friends.
26. You purchase some peaches at \$1.29/lb.

Tell whether the data in each table is a *direct variation*, or an *inverse variation*. Write an equation to model the data.

27.

x	2	7	10
y	35	10	7

28.

x	3	6	24
y	16	8	2

29.

x	5	6	8
y	55	66	88

30.

x	2	8	16
y	9	36	72

31.

x	2	3	9
y	18	12	4

32.

x	2	6	10
y	4.2	12.6	21

33.

x	2	5	12
y	12.8	32	76.8

34.

x	1.2	1.5	2.4
y	5	4	2.5

35.

x	6	9	36
y	3	2	0.5

36. The volume V of a gas in a closed container varies inversely with the pressure p , in atmospheres, that is applied to that gas.
 - a. If $V = 20 \text{ m}^3$ when $p = 1 \text{ atm}$, find V when $p = 4 \text{ atm}$.
 - b. If $V = 24 \text{ m}^3$ when $p = 3 \text{ atm}$, find p when $V = 36 \text{ m}^3$.
 - c. If $V = 48 \text{ m}^3$ when $p = 2 \text{ atm}$, find V when $p = 5 \text{ atm}$.
37. The time t to travel a fixed distance varies inversely with the rate r of travel.
 - a. If $t = 3 \text{ h}$ and $r = 25 \text{ mi/h}$, find t when $r = 50 \text{ mi/h}$.
 - b. If $t = 120 \text{ s}$ and $r = 40 \text{ ft/s}$, find r when $t = 25 \text{ s}$.