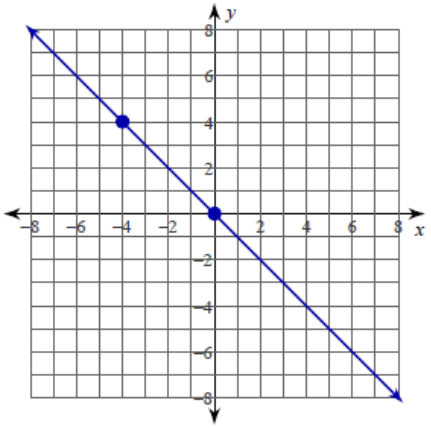
Direct and Inverse Variations … Set 1

Direct & Indirect Variation

Name the CONSTANT of VARIATION for each equation. Then find the SLOPE of each line.

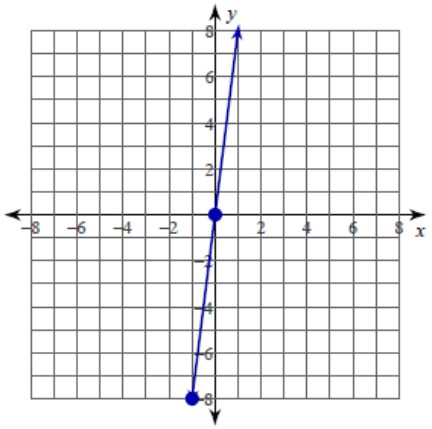
1) $y = -x$

C: S:



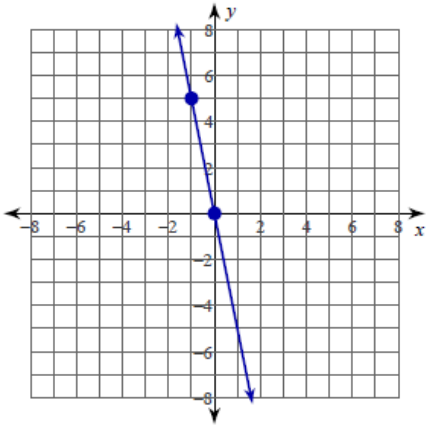
2) $y = 8x$

C: S:



3) $y = -5x$

C: S:



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

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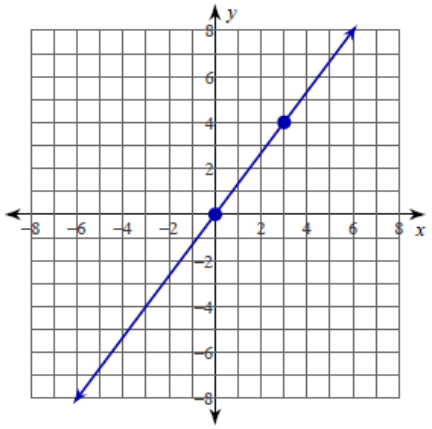

Determine whether each equation represents DIRECT or INVERSE variation.

5) $y = \frac{6}{x}$

6) $y = \frac{10}{x}$

7) $y = 6x^2$

8) $y = 3x^3$

9) $y = 25x$

10) $y = -7x$

11) $y = \frac{5}{x^2}$

12) $y = \frac{9}{x^3}$

Direct and Inverse Variations … Set 1

Answers

1) -1 ; -1

2) 8 ; 8

3) -5 ; -5

4) $\frac{4}{3}$; $\frac{4}{3}$

5) Inverse

6) Inverse

7) Direct

8) Direct

9) Direct

10) Direct

11) Inverse

12) Inverse

Direct and Inverse Variations … Set 1

Solve each problem involving direct or inverse variation.

13) If x varies directly as y, and x = 27 when y = 6, find x when y = 2.

14) If y varies inversely as x, and y = 23 when x = 8, find y when x = 4.

15) If z varies directly as x, and z = 30 when x = 8, find z when x = 4.

16) If y varies inversely as x, and y = 14 when x = 8, find y when x = 7.

17) If d varies directly as t, and d = 150 when t = 3, find d when t = 5.

18) If y varies directly as x, and y = 6 when x = 10, find x when y = 18.

19) If x varies inversely as y, and x = 3 when y = 8, find y when x = 4.

20) If z varies inversely as x^2, and z = 9 when x = $\frac{2}{3}$, find z when x = $\frac{5}{4}$

21) If y varies directly as x, and y = - 4 when x = 32, find y when x = 3.

22) If p varies inversely as q^2, and p = 4 when q = $\frac{1}{2}$, find p when q = $\frac{3}{2}$

Direct and Inverse Variations … Set 1

Answers

13) 9
14) 46
15) 15
16) 16
17) 250
18) 30
19) 6
20) $\frac{64}{25}$
21) $-\frac{3}{8}$
22) $\frac{4}{9}$

Direct and Inverse Variations … Set 1

Solve each problem.

23) The number of pencils sold varies directly as the cost. If 5 pencils cost $0.45, find the cost of 7 pencils.

24) On a scale drawing, 2 feet represents 30 yards. How many yards are represented by 3 feet?

25) On a map, 180 miles are represented by 4 inches. How many miles are represented by 6 inches?

26) The bending of a beam varies directly as its mass. A beam is bent 20mm by a mass of 40 kg. How much will the beam bend with a mass of 100 kg?

27) Y varies directly as the square of x. If y is 25 when x is 3, find y when x is 2.

28) The distance needed to stop a car varies directly as the square of its speed. It requires 120 m to stop a car at 70 km/h. What distance is required to stop a car at 80 km/h?

29) Laura has a mass of 60 kg and is sitting 265 cm from the fulcrum of a seesaw. Bill has a mass of 50 kg. How far from the fulcrum must he be to balance the seesaw? (Hint: The distance from the fulcrum varies inversely as the mass).

30) Tina's mass is 40 kg, and she is sitting 2 m from the fulcrum of a seesaw. Jasmine's mass is 20 kg. How far from the fulcrum must she sit to balance the seesaw?

31) Time varies inversely as speed if the distance is constant. A trip takes 4 hours at 80 km/h. How long does it take at 64 km/h?

32) In an electric circuit, the current varies inversely as the resistance. The current is 40 amps when the resistance is 12 ohms. Find the current when the resistance is 20 ohms.

33) The number of hours required to do a job varies inversely as the number of people working. It takes 8 hours for 4 people to paint the inside of a house. How long would it take 5 people to do the job?

34) The length of the base of a triangle with constant area varies inversely as the height. When the base is 18 cm long, the height is 7 cm. Find the length of the base when the height is 6 cm.

Direct and Inverse Variations … Set 1

Answers

23) \$0.63

24) 45 yards

25) 270 miles

26) 50 mm

27) $11\frac{1}{9}$

28) 156.73 m

29) 318 cm

30) 4 m

31) 5 hours

32) 24 amps

33) 6.4 hours

34) 21 cm