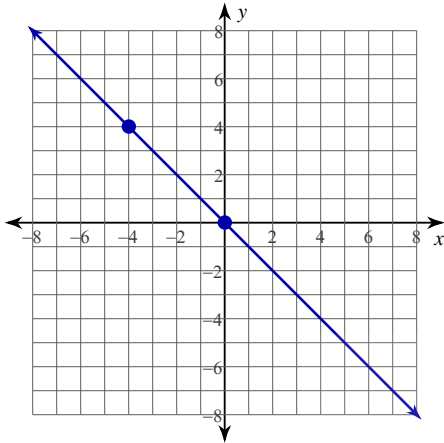


Assignment : Direct and Inverse variation

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

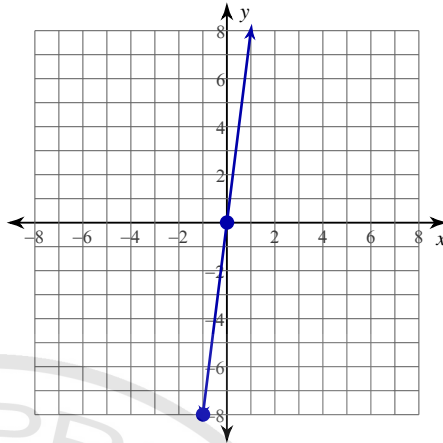
1) $y = -x$

C: S:



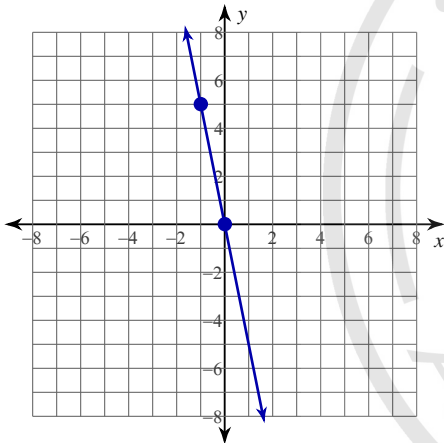
2) $y = 8x$

C: S:



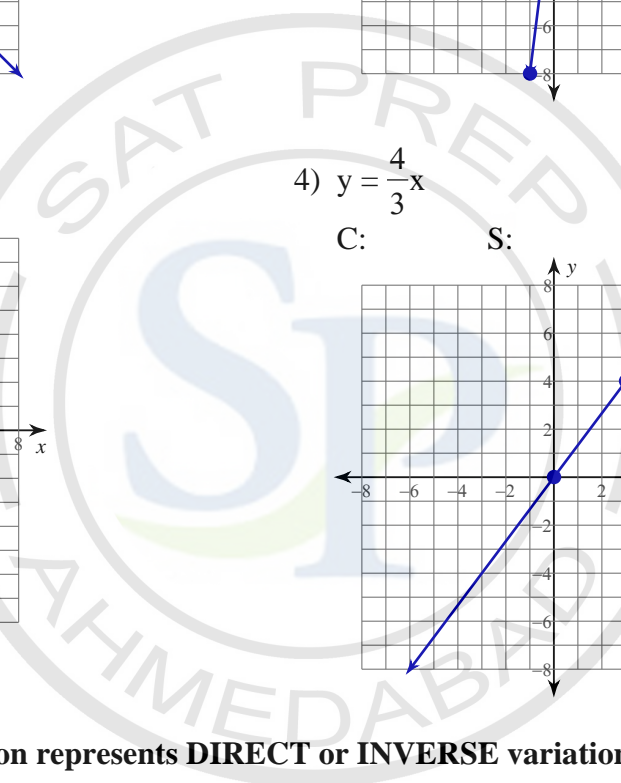
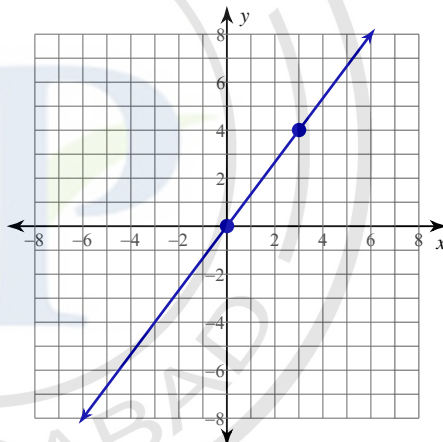
3) $y = -5x$

C: S:



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

C: S:



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

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 $q = \frac{3}{2}$.

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.

Answers to (ID: 1)

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

13) 9

14) 46

15) 15

16) 16

17) 250

18) 30

19) 6

20) $\frac{64}{25}$

21) $-\frac{3}{8}$

22) $\frac{4}{9}$

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

