

Find the x -intercept and y -intercept of each line. Then graph the equation.

7. $3x + y = -21$

8. $4x - 5y = 20$

9. $3x + 2y = 12$

10. $3x - 2y = 12$

11. $5x + 8y = 20$

12. $3x + 4y = -18$

Find the slope and y -intercept of each line. Plot the y -intercept. Then, using the slope, plot one more point. Finally, graph the line.

13. $y = 2x - 3$

14. $y = 2x + 3$

15. $y = -4x$

16. $y = \frac{3}{4}x + 1$

17. $y = -\frac{2}{3}x - 4$

18. $y = \frac{5}{3}x - 2$

Find the slope and y -intercept of each line.

Example $x + 3y = -6$

Solution Write the equation in slope-intercept form.

$$3y = -x - 6$$

$$y = -\frac{1}{3}x - 2$$

The slope is $-\frac{1}{3}$. The y -intercept is -2 .

19. $4x + y = 10$

20. $2x - y = 5$

21. $5x - 2y = 10$

22. $3x + 4y = 12$

23. $x - 4y = 6$

24. $4x + 3y = 8$

Solve each pair of equations algebraically. Then draw the graphs of the equations and label their intersection point.

25. $x + y = 3$

26. $2x + y = 7$

27. $x + 2y = 10$

$x - y = -1$

$3x + y = 9$

$3x - 2y = 6$

28. $3x + 2y = -30$

29. $4x + 5y = -7$

30. $3x + 2y = 8$

$y = x$

$2x - 3y = 13$

$-x + 3y = 12$

B

31. a. Find the slopes of the lines $6x + 3y = 10$ and $y = -2x + 5$.

b. Do the lines intersect?

c. What happens when you solve these equations algebraically?

32. Give a geometric reason and an algebraic reason why the lines $y = 3x - 5$ and $y = 3x + 5$ do not intersect.

33. a. Find the slopes of the lines $2x - y = 7$ and $x + 2y = 4$.

b. What can you conclude about the lines? State the theorem that supports your answer.

34. a. On the same axes, graph

$$y = -2, x = -3, \text{ and } 2x + 3y = 6.$$

b. Find the coordinates of the three points where the lines intersect.

c. Find the area of the triangle determined by the three lines.