

Therefore, the point of intersection is  $\left(\frac{42}{13}, \frac{11}{13}\right)$ . You can check that this point also satisfies the other equation. The lines and their point of intersection are shown in Figure 1.74.

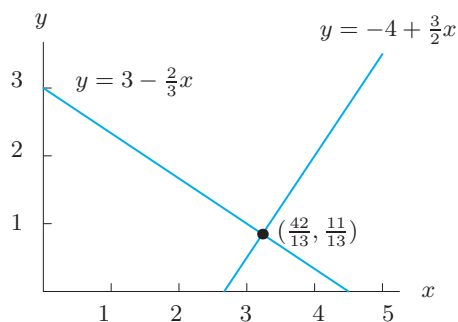


Figure 1.74: Intersection of lines is solution to simultaneous equations

## Exercises Skills for Chapter 1

Solve the equations in Exercises 1–12.

1.  $3x = 15$

2.  $-2y = 12$

3.  $4z = 22$

4.  $x + 3 = 10$

5.  $w - 23 = -34$

6.  $7 - 3y = -14$

7.  $13t + 2 = 47$

8.  $0.5x - 3 = 7$

9.  $3t - \frac{2(t-1)}{3} = 4$

10.  $2(r + 5) - 3 = 3(r - 8) + 21$

11.  $B - 4[B - 3(1 - B)] = 42$

12.  $1.06s - 0.01(248.4 - s) = 22.67s$

In Exercises 13–22, solve for the indicated variable.

13.  $A = l \cdot w$ , for  $l$ .

14.  $l = l_0 + \frac{k}{2}w$ , for  $w$ .

15.  $h = v_0t + \frac{1}{2}at^2$ , for  $a$ .

16.  $3xy + 1 = 2y - 5x$ , for  $y$ .

17.  $u(v + 2) + w(v - 3) = z(v - 1)$ , for  $v$ .

18.  $S = \frac{rL - a}{r - 1}$ , for  $r$ .

19.  $\frac{a - cx}{b + dx} + a = 0$ , for  $x$ .

20.  $\frac{At - B}{C - B(1 - 2t)} = 3$ , for  $t$ .

21.  $y'y^2 + 2xyy' = 4y$ , for  $y'$ .

22.  $2x - (xy' + yy') + 2yy' = 0$ , for  $y'$ .

Solve the systems of equations in Exercises 23–27.

23.  $\begin{cases} 3x - 2y = 6 \\ y = 2x - 5 \end{cases}$

24.  $\begin{cases} x = 7y - 9 \\ 4x - 15y = 26 \end{cases}$

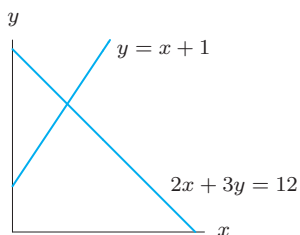
25.  $\begin{cases} 2x + 3y = 7 \\ y = -\frac{3}{5}x + 6 \end{cases}$

26.  $\begin{cases} 3x - y = 17 \\ -2x - 3y = -4 \end{cases}$

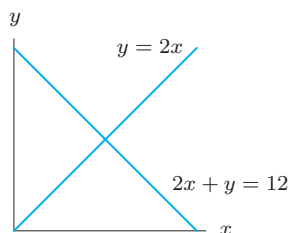
27.  $\begin{cases} ax + y = 2a \\ x + ay = 1 + a^2 \end{cases}$

Determine the points of intersection for Exercises 28–29.

28.

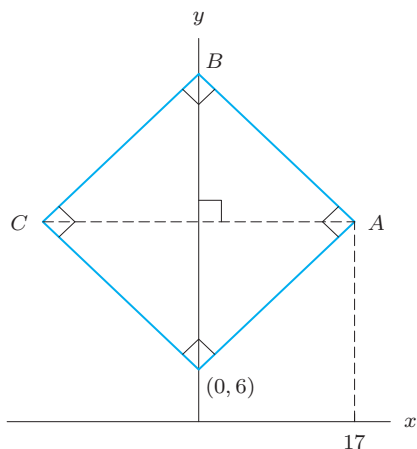


29.

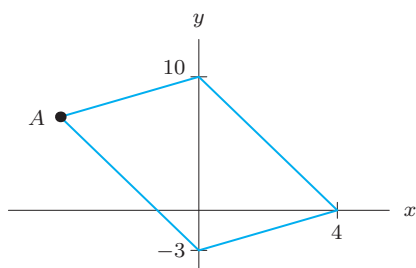


The figures in Problems 30–31 are parallelograms. Find the coordinates of the labeled point(s).

30.

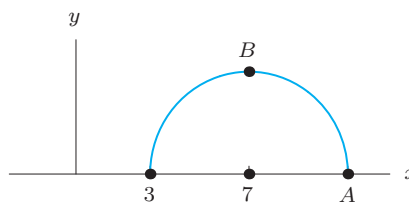


31.

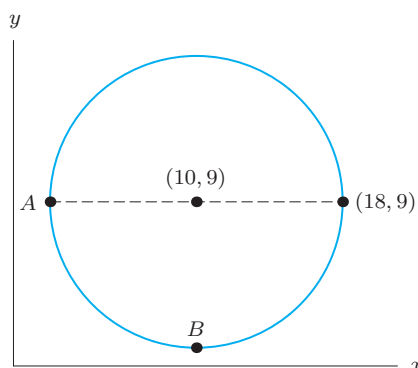


The figures in Problems 32–35 contain a semicircle with the center marked. Find the coordinates of A, a point on the diameter, and B, an extreme point (highest, lowest, or farthest to the right).

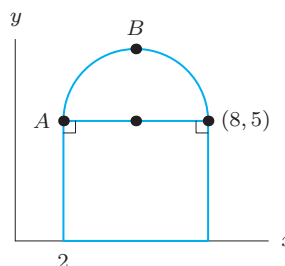
32.



33.



34.



35.

