

Homework 39.1

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Solve each equation. Remember to check for extraneous solutions.

1) $\sqrt{b} = 5$

$$\begin{aligned} (\sqrt{b})^2 &= 5^2 \\ b &= 25 \end{aligned}$$

3) $3 = \sqrt{19 - x}$

$$\begin{aligned} 3^2 &= (\sqrt{19-x})^2 \\ 9 &= 19 - x \\ -19 &\quad -19 \\ \hline -10 &= -x \\ -1 &\quad -1 \\ 10 &= x \end{aligned}$$

5) $\sqrt{3n+19} = 7$

$$\begin{aligned} (\sqrt{3n+19})^2 &= 7^2 \\ 3n+19 &= 49 \\ -19 &\quad -19 \\ \hline 3n &= 30 \\ 3 &\quad 3 \\ n &= 10 \end{aligned}$$

Solve each system by elimination.

7) $-14x + 10y = 16$

$$\begin{array}{r} 2) \quad (7x + 5y = 22) \\ \hline -14x + 10y = 16 \\ 14x + 10y = 44 \\ \hline 20y = 60 \\ 20 \quad 20 \\ y = 3 \end{array}$$

7x + 5(3) = 22

$$\begin{array}{r} 7x + 15 = 22 \\ -15 \quad -15 \\ \hline 7x = 7 \\ 7 \quad 7 \\ x = 1 \end{array}$$

Write the slope-intercept form of the equation of the line through the given points.

9) through: (1, -5) and (5, 3)

$$m = \frac{-5 - 3}{1 - 5} = \frac{-8}{-4} = 2$$

$$y + 5 = 2(x - 1)$$

$$\begin{array}{r} y + 5 = 2x - 2 \\ -5 \quad -5 \\ \hline y = 2x - 7 \end{array}$$

2) $4 = \sqrt{n}$

$$\begin{aligned} (4)^2 &= (\sqrt{n})^2 \\ 16 &= n \end{aligned}$$

4) $\frac{-7\sqrt{11x-10}}{-7} = \frac{-70}{-7}$

$$\sqrt{11x-10} = 10$$

$$(\sqrt{11x-10})^2 = 10^2$$

$$\begin{array}{r} 11x - 10 = 100 \\ +10 \quad +10 \\ \hline 11x = 110 \end{array}$$

6) $\sqrt{\frac{k}{10}} + 4 = 12$

$$(\sqrt{\frac{k}{10}})^2 = (8)^2$$

(10) $\frac{k}{10} = 64(10)$

$$k = 640$$

8) $6x + 8y = -10$

$$\begin{array}{r} 3(-2x - 9y = -22) \\ \hline 6x + 8y = -10 \\ -6x - 27y = -66 \\ \hline -19y = -76 \\ -19 \quad -19 \\ y = 4 \end{array}$$

6x + 8(4) = -10

$$\begin{array}{r} 6x + 32 = -10 \\ -32 \quad -32 \\ \hline 6x = -42 \\ 6 \quad 6 \\ x = -7 \end{array}$$

$$(-7, 4)$$

10) through: (1, -1) and (-3, -3)

$$m = \frac{-1 + 3}{1 + 3} = \frac{2}{4} = \frac{1}{2}$$

$$y + 1 = \frac{1}{2}(x - 1)$$

$$2(y + 1) = 1(x - 1)$$

$$\begin{array}{r} 2y + 2 = x - 1 \\ -2 \quad -2 \\ \hline 2y = x - 3 \\ 2 \quad 2 \end{array}$$

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

Answers to Homework 39.1

1) $\{25\}$

5) $\{10\}$

9) $y = 2x - 7$

2) $\{16\}$

6) $\{640\}$

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

3) $\{10\}$

7) $(1, 3)$

4) $\{10\}$

8) $(-7, 4)$