

Solve each equation.

$$1) 3(x - 7) + 5x = 13 + 10x$$

$$3x - 21 + 5x = 13 + 10x$$

$$8x - 21 = 13 + 10x$$

$$\begin{array}{r} -8x \\ \hline -21 = 13 + 2x \end{array}$$

$$\begin{array}{r} -13 - 13 \\ \hline -34 = \end{array}$$

$$\begin{array}{r} 2x \\ \hline 2 \\ -17 = x \end{array}$$

$$2) 6 = -7k + (k + 3 - 15)$$

$$6 = -6k - 12$$

$$\begin{array}{r} +12 \\ \hline 18 = \end{array}$$

$$\begin{array}{r} -6k \\ \hline -6 \\ -3 = k \end{array}$$

$$3) 12 - 4(7y - 5) = -8 - 8y$$

$$12 - 28y + 20 = -8 - 8y$$

$$32 - 28y = -8 - 8y$$

$$\begin{array}{r} +28y \\ \hline 32 = \end{array}$$

$$\begin{array}{r} -8 + 20y \\ \hline 24 = \end{array}$$

$$\begin{array}{r} +8 \\ \hline 40 = \end{array}$$

$$\begin{array}{r} 20y \\ \hline 20 \\ 2 = y \end{array}$$

$$4) 6n + 10 - 5n = 0$$

$$\begin{array}{r} 1n + 10 = 0 \\ -10 - 10 \\ \hline n = -10 \end{array}$$

$$5) 9 - 7x = 4x - (9x - 3)$$

$$9 - 7x = 4x - 9x + 3$$

$$9 - 7x = -5x + 3$$

$$\begin{array}{r} +7x \\ \hline 9 = 2x + 3 \end{array}$$

$$\begin{array}{r} -3 \\ \hline 6 = \frac{2x}{2} \end{array}$$

$$\boxed{3 = x}$$

$$6) 17 - 7 = 3k - 13k$$

$$\begin{array}{r} 10 \\ -10 \\ \hline \end{array} = \begin{array}{r} -10k \\ 10 \\ \hline \end{array}$$

$$\boxed{-1 = k}$$

$$7) 2a - 5(2a + 8) + 4 = 36$$

$$2a - 10a - 40 + 4 = 36$$

$$-8a - 36 = 36$$

$$\begin{array}{r} +36 \\ +36 \\ \hline \end{array} = \begin{array}{r} 36 \\ 36 \\ \hline \end{array}$$

$$\begin{array}{r} -8a \\ -8 \\ \hline \end{array} = \begin{array}{r} 72 \\ 8 \\ \hline \end{array}$$

$$\boxed{a = -9}$$

$$8) -6 - 8x + 9 = 3 - 9x$$

$$3 - 8x = 3 - 9x$$

$$\begin{array}{r} +9x \\ +9x \\ \hline \end{array}$$

$$3 + 1x = 3$$

$$\begin{array}{r} -3 \\ -3 \\ \hline \end{array}$$

$$\boxed{x = 0}$$

$$9) 4x + 33 = -8x - 9 + 5x$$

$$4x + 33 = -3x - 9$$

$$\begin{array}{r} +3x \\ +3x \\ \hline 7x + 33 = \end{array} \begin{array}{r} -9 \\ -33 \\ \hline \end{array}$$

$$\begin{array}{r} 7x \\ 7 \\ \hline \end{array} = \begin{array}{r} -42 \\ 7 \\ \hline \end{array}$$

$$\boxed{x = -6}$$

$$10) 6y + 5(3y - 7) = 20y$$

$$6y + 15y - 35 = 20y$$

$$21y - 35 = 20y$$

$$\begin{array}{r} -21y \\ -21y \\ \hline -35 = \end{array} \begin{array}{r} 21y \\ 21 \\ \hline \end{array}$$

$$\begin{array}{r} -35 \\ -1 \\ \hline \end{array} = \begin{array}{r} 21y \\ 21 \\ \hline \end{array}$$

$$\boxed{35 = y}$$

$$11) -7(3x - 8) = 56 - 20x$$

$$-21x + 56 = 56 - 20x$$

$$\begin{array}{r} +21x \\ +21x \\ \hline 56 = \end{array} \begin{array}{r} 56 + 1x \\ 56 \\ \hline \end{array}$$

$$\begin{array}{r} 56 \\ -56 \\ \hline 0 = \end{array} \begin{array}{r} 1x \\ 1 \\ \hline \end{array}$$

$$\boxed{0 = x}$$

$$12) 9x - 16 + x = 14 + 20$$

$$10x - 16 = 34$$

$$\begin{array}{r} +16 \\ +16 \\ \hline \end{array}$$

$$\begin{array}{r} 10x \\ 10 \\ \hline \end{array} = \begin{array}{r} 50 \\ 10 \\ \hline \end{array}$$

$$\boxed{x = 5}$$