

Key

Two-Step Equations

Solve each equation.

$$1) 6 = \frac{a}{4} + 2$$

$$\begin{array}{r} -2 \quad -2 \\ \hline (4) 4 = \frac{a}{4} (4) \\ 16 = a \end{array}$$

$$2) -6 + \frac{x}{4} = -5$$

$$\begin{array}{r} +6 \quad +6 \\ \hline (4) \frac{x}{4} = 1 (4) \\ x = 4 \end{array}$$

$$3) 9x - 7 = -7$$

$$\begin{array}{r} +7 \quad +7 \\ \hline 9x = 0 \\ \frac{9}{9} \quad \frac{9}{9} \\ x = 0 \end{array}$$

$$4) 0 = 4 + \frac{n}{5}$$

$$\begin{array}{r} -4 \quad -4 \\ \hline (5) -4 = \frac{n}{5} (5) \\ (-20) = n \end{array}$$

$$5) -4 = \frac{r}{20} - 5$$

$$\begin{array}{r} +5 \quad +5 \\ \hline (20) 1 = \frac{r}{20} (20) \\ 20 = r \end{array}$$

$$6) -1 = \frac{5+x}{6}$$

$$\begin{array}{r} (6) (-1) = \frac{5+x}{6} (6) \\ -6 = 5+x \\ \begin{array}{r} -5 \quad -5 \\ \hline (-11) = x \end{array} \end{array}$$

$$7) \frac{v+9}{3} = 8$$

$$\begin{array}{r} (3) \frac{v+9}{3} = 8 (3) \\ v+9 = 24 \\ \begin{array}{r} -9 \quad -9 \\ \hline v = 15 \end{array} \end{array}$$

$$8) 2(n+5) = -2$$

$$\begin{array}{r} 2n+10 = -2 \\ \begin{array}{r} -10 \quad -10 \\ \hline 2n = -12 \\ \frac{2}{2} \quad \frac{2}{2} \\ n = (-6) \end{array} \end{array}$$

$$9) -9x + 1 = -80$$

$$\begin{array}{r} -1 \quad -1 \\ \hline -9x = (-81) \\ \begin{array}{r} -9 \quad -9 \\ \hline x = 9 \end{array} \end{array}$$

$$10) -6 = \frac{n}{2} - 10$$

$$\begin{array}{r} +10 \quad +10 \\ \hline (2) 4 = \frac{n}{2} (2) \\ 8 = n \end{array}$$

$$11) -2 = 2 + \frac{v}{4}$$

$$\begin{array}{r} -2 \quad -2 \\ \hline (4) -4 = \frac{v}{4} (4) \\ (-16) = v \end{array}$$

$$12) 144 = -12(x+5)$$

$$\begin{array}{r} 144 = -12x + (-60) \\ +60 \quad +60 \\ \hline 204 = -12x \\ \begin{array}{r} -12 \quad -12 \\ \hline -17 = x \end{array} \end{array}$$

OR

$$\begin{array}{r} 144 = -12(x+5) \\ \begin{array}{r} -12 \quad -12 \\ \hline (-12) = x+5 \\ \begin{array}{r} -5 \quad -5 \\ \hline -17 = x \end{array} \end{array} \end{array}$$

$$13) \begin{array}{r} -15 = -4m + 5 \\ -5 \quad -5 \\ \hline -20 = -4m \\ -4 \quad -4 \\ \hline 5 = m \end{array}$$

$$14) \begin{array}{r} 10 - 6v = -104 \\ -10 \quad -10 \\ \hline -6v = -114 \\ -6 \quad -6 \\ \hline v = 19 \end{array}$$

$$15) \begin{array}{r} 8n + 7 = 31 \\ -7 \quad -7 \\ \hline 8n = 24 \\ 8 \quad 8 \\ \hline n = 3 \end{array}$$

$$16) \begin{array}{r} -9x - 13 = -103 \\ +13 \quad +13 \\ \hline -9x = -90 \\ -9 \quad (-9) \\ \hline x = 10 \end{array}$$

$$17) \frac{n+5}{-16} = -1$$

$$(-16) \frac{n+5}{-16} = (-1)(-16)$$

$$\begin{array}{r} n+5 = 16 \\ -5 \quad -5 \\ \hline n = 11 \end{array}$$

$$18) -10 = -10 + 7m$$

$$\begin{array}{r} +10 \quad +10 \\ \hline 0 = 7m \\ 7 \quad 7 \\ \hline 0 = m \end{array}$$

$$19) -10 = 10(k-9)$$

$$\begin{array}{r} -10 = 10k - 90 \\ +90 \quad +90 \\ \hline 80 = 10k \\ 10 \quad 10 \\ \hline 8 = k \end{array}$$

$$20) \frac{m}{9} - 1 = -2$$

$$\begin{array}{r} +1 \quad +1 \\ \hline (9) \frac{m}{9} = (-1)(9) \\ \hline m = -9 \end{array}$$

$$21) 9 + 9n = 9$$

$$\begin{array}{r} -9 \quad -9 \\ \hline 9n = 0 \\ 9 \quad 9 \\ \hline n = 0 \end{array}$$

$$22) 7(9+k) = 84$$

$$\begin{array}{r} 63 + 7k = 84 \\ -63 \quad -63 \\ \hline 7k = 21 \\ 7 \quad 7 \\ \hline k = 3 \end{array}$$

$$23) 8 + \frac{b}{-4} = 5$$

$$\begin{array}{r} -8 \quad -8 \\ \hline (-4) \frac{b}{-4} = -3(-4) \\ \hline b = 12 \end{array}$$

$$24) -243 = -9(10+x)$$

$$\begin{array}{r} -243 = -90 - 9x \\ +90 \quad +90 \\ \hline -153 = -9x \\ -9 \quad -9 \\ \hline 17 = x \end{array}$$