

Multi-Step Equations

Solve each equation.

1) $-20 = -4x - 6x$

2) $6 = 1 - 2n + 5$

3) $8x - 2 = -9 + 7x$

4) $a + 5 = -5a + 5$

5) $4m - 4 = 4m$

6) $p - 1 = 5p + 3p - 8$

7) $5p - 14 = 8p + 4$

8) $p - 4 = -9 + p$

9) $-8 = -(x + 4)$

10) $12 = -4(-6x - 3)$

11) $14 = -(p - 8)$

12) $-(7 - 4x) = 9$

13) $-18 - 6k = 6(1 + 3k)$

14) $5n + 34 = -2(1 - 7n)$

15) $2(4x - 3) - 8 = 4 + 2x$

16) $3n - 5 = -8(6 + 5n)$

17) $-(1 + 7x) - 6(-7 - x) = 36$

18) $-3(4x + 3) + 4(6x + 1) = 43$

19) $24a - 22 = -4(1 - 6a)$

20) $-5(1 - 5x) + 5(-8x - 2) = -4x - 8x$

$$\textcircled{1} -20 = -4x - 6x$$

$$\begin{array}{r} -20 = -10x \\ \underline{-10} \quad \underline{-10} \end{array}$$

$$\textcircled{2 = x}$$

$$\textcircled{3} \begin{array}{r} 8x - 2 = -9 + 7x \\ \underline{-7x} \quad \underline{-7x} \end{array}$$

$$x - 2 = -9$$

$$\begin{array}{r} +2 \quad +2 \\ \hline \end{array}$$

$$\textcircled{x = -7}$$

$$\textcircled{5} \begin{array}{r} 4m - 4 = 4m \\ \underline{+4} \quad \underline{+4} \end{array}$$

$$4m = 4m + 4$$

$$\begin{array}{r} -4m \quad -4m \\ \hline \end{array}$$

$0 = 4$ no solution

$$\textcircled{7} \begin{array}{r} 5p - 14 = 8p + 4 \\ \underline{-5p} \quad \underline{-5p} \end{array}$$

$$\begin{array}{r} -14 = 3p + 4 \\ \underline{-4} \quad \underline{-4} \end{array}$$

$$\begin{array}{r} -18 = 3p \\ \underline{3} \quad \underline{3} \end{array}$$

$$\textcircled{-6 = p}$$

$$\textcircled{9} -8 = -(x + 4)$$

$$\begin{array}{r} -8 = -x + (-4) \\ \underline{+4} \quad \underline{+4} \end{array}$$

$$\begin{array}{r} \cdot (-1) \\ -4 = -x \cdot (-1) \end{array}$$

$$4 = x$$

$$-8 = -(4 + 4)$$

$$-8 = -(8)$$

$$-8 = -8$$

$$\textcircled{1} 14 = -(p-8) \quad \textcircled{2} 6 = 1-2n+5$$

$$14 = -p - 8$$

$$\begin{array}{r} 14 \\ -8 \\ \hline \end{array} \quad \begin{array}{r} -8 \\ -8 \\ \hline \end{array}$$

$$6 = 6 - 2n$$

$$\begin{array}{r} 6 \\ -6 \\ \hline \end{array} \quad \begin{array}{r} -2n \\ -2n \\ \hline \end{array}$$

$$0 = -2n$$

$$\begin{array}{r} 0 \\ -2 \\ \hline \end{array} \quad \begin{array}{r} -2n \\ -2n \\ \hline \end{array}$$

$$(-1) \cdot 6 = -p \cdot (-1)$$

$$\textcircled{-6 = p}$$

$$\textcircled{0 = n}$$

$$\textcircled{8} p-4 = -9+p$$

$$\begin{array}{r} p-4 \\ +4 \\ \hline \end{array} \quad \begin{array}{r} -9+p \\ +4 \\ \hline \end{array}$$

$$p = -5 + p$$

$$\begin{array}{r} p \\ -p \\ \hline \end{array} \quad \begin{array}{r} -5+p \\ -p \\ \hline \end{array}$$

$0 = -5$
no solution

$$\textcircled{4} a+5 = -a+5$$

$$\begin{array}{r} a+5 \\ +5a \\ \hline \end{array} \quad \begin{array}{r} -a+5 \\ +5a \\ \hline \end{array}$$

$$6a+5 = 5$$

$$\begin{array}{r} 6a+5 \\ -5 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ -5 \\ \hline \end{array}$$

$$6a = 0$$

$$\begin{array}{r} 6a \\ 6 \\ \hline \end{array} \quad \begin{array}{r} 0 \\ 6 \\ \hline \end{array}$$

$$\textcircled{a=0}$$

$$\textcircled{6} p-1 = 5p+3p-8$$

$$p-1 = 8p-8$$

$$\begin{array}{r} p-1 \\ +8 \\ \hline \end{array} \quad \begin{array}{r} 8p-8 \\ +8 \\ \hline \end{array}$$

$$p+7 = 8p$$

$$\begin{array}{r} p+7 \\ -p \\ \hline \end{array} \quad \begin{array}{r} 8p \\ -p \\ \hline \end{array}$$

$$7 = 7p$$

$$\begin{array}{r} 7 \\ 7 \\ \hline \end{array} \quad \begin{array}{r} 7p \\ 7 \\ \hline \end{array} \quad \textcircled{p=1}$$

$$\textcircled{p=1}$$

$$7 = 7p$$