

SOLVING EQUATIONS PRACTICE**Directions:** Solve each of the equations below for x. Show all your work.

$$1. \quad \begin{array}{r} 2x + 5 = x - 7 \\ -5 \quad -5 \\ \hline 2x = x - 12 \\ -x \quad -x \\ \hline \boxed{x = -12} \end{array}$$

check:

$$\begin{aligned} 2(-12) + 5 &\stackrel{?}{=} (-12) - 7 \\ -24 + 5 &\stackrel{?}{=} -19 \\ -19 &= -19 \checkmark \end{aligned}$$

$$2. \quad \begin{array}{r} -2(x+3) = 6+x \\ -2x - 6 = 6+x \\ +6 \quad +6 \\ \hline -2x = 12+x \\ -x \quad -x \\ \hline -3x = 12 \\ -3 \quad -3 \\ \hline \boxed{x = -4} \end{array}$$

check:

$$\begin{aligned} -2(-4+3) &\stackrel{?}{=} 6+(-4) \\ -2(-1) &\stackrel{?}{=} 2 \\ 2 &= 2 \checkmark \end{aligned}$$

$$3. \quad \begin{array}{r} 3x + 21 - 2x + 3 = 180 \\ 3x - 2x + 21 + 3 = 180 \\ x + 24 = 180 \\ -24 \quad -24 \\ \hline \boxed{x = 156} \end{array}$$

check:

$$\begin{aligned} 3(156) + 21 - 2(156) + 3 &\stackrel{?}{=} 180 \\ 468 + 21 - 312 + 3 &\stackrel{?}{=} 180 \\ 489 - 309 &\stackrel{?}{=} 180 \\ 180 &= 180 \checkmark \end{aligned}$$

$$4. \quad \begin{array}{r} 4x - 5 - (x - 5) = 180 \\ 4x - 5 - x + 5 = 180 \\ 4x - x - 5 + 5 = 180 \\ 3x = 180 \\ 3 \quad 3 \\ \hline \boxed{x = 60} \end{array}$$

check:

$$\begin{aligned} 4(60) - 5 - (60 - 5) &\stackrel{?}{=} 180 \\ 240 - 5 - (55) &\stackrel{?}{=} 180 \\ 235 - 55 &\stackrel{?}{=} 180 \\ 180 &= 180 \checkmark \end{aligned}$$

$$5. \quad \begin{array}{r} -2x + 7 = 5x - 12 \\ +2x \quad +2x \\ \hline 7 = 7x - 12 \\ +12 \quad +12 \\ \hline 19 = 7x \\ 7 \quad 7 \\ \hline \boxed{x = \frac{19}{7}} \end{array}$$

check:

$$\begin{aligned} -2\left(\frac{19}{7}\right) + 7 &\stackrel{?}{=} 5\left(\frac{19}{7}\right) - 12 \\ -\frac{38}{7} + \frac{49}{7} &\stackrel{?}{=} \frac{95}{7} - \frac{84}{7} \\ \frac{11}{7} &= \frac{11}{7} \checkmark \end{aligned}$$

$$6. \quad \begin{array}{r} 3x + 3 = 90 \\ -3 \quad -3 \\ \hline 3x = 87 \\ 3 \quad 3 \\ \hline \boxed{x = 29} \end{array}$$

check:

$$\begin{aligned} 3(29) + 3 &\stackrel{?}{=} 90 \\ 87 + 3 &\stackrel{?}{=} 90 \\ 90 &= 90 \checkmark \end{aligned}$$