

Directions: Solve each equation, showing all work.

1. $6(x + 1) + 5 = 35$

$$6x + 6 + 5 = 35$$

$$6x + 11 = 35$$

$$\begin{array}{r} -11 \\ -11 \end{array}$$

$$6x = 24$$

$$\begin{array}{r} /6 \\ /6 \end{array}$$

$$x = 4$$

2. $-14 = -2(5 - x) + 16$

$$-14 = -10 + 2x + 16$$

$$-14 = 2x + 6$$

$$\begin{array}{r} -6 \\ -6 \end{array}$$

$$-20 = 2x$$

$$\begin{array}{r} /2 \\ /2 \end{array}$$

$$-10 = x$$

3. $\frac{4(x-8)}{5} = 16$

$$\frac{4x - 32}{5} = 16 \cdot 5$$

$$4x - 32 = 80$$

$$\begin{array}{r} +32 \\ +32 \end{array}$$

$$4x = 112$$

$$\begin{array}{r} /4 \\ /4 \end{array}$$

$$x = 28$$

4. $-4x - 46 = 5x + 71$

$$\begin{array}{r} +4x \\ +4x \end{array}$$

$$-46 = 9x + 71$$

$$\begin{array}{r} -71 \\ -71 \end{array}$$

$$-117 = 9x$$

$$\begin{array}{r} /9 \\ /9 \end{array}$$

$$-13 = x$$

5. $-4 - 5x = -4x + 9$

$$\begin{array}{r} +5x \\ +5x \end{array}$$

$$-4 = x + 9$$

$$\begin{array}{r} -9 \\ -9 \end{array}$$

$$-13 = x$$

6. $4x + 31 = -67 - 3x$

$$\begin{array}{r} +67 \\ +67 \end{array}$$

$$4x + 98 = -3x$$

$$\begin{array}{r} -4x \\ -4x \end{array}$$

$$98 = -7x$$

$$\begin{array}{r} /-7 \\ /-7 \end{array}$$

$$-14 = x$$

7. $8x - 27 - 10 - 6x = 15$

$$\begin{array}{r} 2x - 37 = 15 \\ + 37 + 37 \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{52}{2}$$

$$x = 26$$

8. $8(1 + 5x) + 5 = 13 + 5x$

$$8 + 40x + 5 = 13 + 5x$$

$$\begin{array}{r} 13 + 40x = 13 + 5x \\ -13 \quad -13 \\ \hline \end{array}$$

$$\begin{array}{r} 40x = 5x \\ -40x \quad -40x \\ \hline \end{array}$$

$$\begin{array}{r} 0 = -35x \\ -35 \quad -35 \\ \hline \end{array}$$

$$0 = x$$

9. $5(4x - 2) + 9 = 2(8x + 7)$

$$20x - 10 + 9 = 16x + 14$$

$$\begin{array}{r} 20x - 1 = 16x + 14 \\ + 1 \quad + 1 \\ \hline \end{array}$$

$$\begin{array}{r} 20x = 16x + 15 \\ -16x \quad -16x \\ \hline \end{array}$$

$$\frac{4x}{4} = \frac{15}{4}$$

$$x = 3.75$$

10. $7 - 2(-5x - 9) + 2x = 4(2x - 1) + 3(x + 12)$

$$7 + 10x + 18 + 2x = 8x - 4 + 3x + 36$$

$$\begin{array}{r} 25 + 12x = 11x + 32 \\ -11x \quad -11x \\ \hline \end{array}$$

$$\begin{array}{r} 25 + x = 32 \\ -25 \quad -25 \\ \hline \end{array}$$

$$x = 7$$