

Absolute Value Equations Practice

Solve each equation. Show all work for credit.

1) $|3p| = 18$

$$\frac{3p}{3} = \frac{18}{3}$$

$$\frac{3p}{3} = \frac{-18}{3}$$

$$p = 6$$

$$p = -6$$

2) $|x-4| = 5$

$$\begin{array}{r} x-4 = 5 \\ +4 \quad +4 \\ \hline \end{array}$$

$$x = 9$$

$$\begin{array}{r} x-4 = -5 \\ +4 \quad +4 \\ \hline \end{array}$$

$$x = -1$$

3) $|3+k| = 3$

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

$$k = 0$$

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

$$k = -6$$

4) $\left|\frac{b}{10}\right| = 3$

$$(10) \frac{b}{10} = 3 \quad (10) \frac{b}{10} = -3 \quad (10) \frac{b}{10} = -3(10)$$

$$b = 30$$

$$b = -30$$

5) $|2x+4| = 6$

$$\begin{array}{r} 2x+4 = 6 \\ -4 \quad -4 \\ \hline 2x = 2 \\ \frac{2x}{2} = \frac{2}{2} \end{array}$$

$$x = 1$$

$$\begin{array}{r} 2x+4 = -6 \\ -4 \quad -4 \\ \hline 2x = -10 \\ \frac{2x}{2} = \frac{-10}{2} \end{array}$$

$$x = -5$$

6) $|-3-6m| = 45$

$$\begin{array}{r} -3-6m = 45 \\ +3 \quad +3 \\ \hline -6m = 48 \\ \frac{-6m}{-6} = \frac{48}{-6} \end{array}$$

$$m = -8$$

$$\begin{array}{r} -3-6m = -45 \\ +3 \quad +3 \\ \hline -6m = -42 \\ \frac{-6m}{-6} = \frac{-42}{-6} \end{array}$$

$$m = 7$$

7) $|3n-8| = -26$

No solution

8) $\frac{|x-8|}{5} = 5$

$$(5) \frac{|x-8|}{5} = 5 \quad (5)$$

$$|x-8| = 25$$

$$\begin{array}{r} x-8 = 25 \\ +8 \quad +8 \\ \hline \end{array}$$

$$x = 33$$

$$\begin{array}{r} x-8 = -25 \\ +8 \quad +8 \\ \hline \end{array}$$

$$x = -17$$

$$9) \left| \frac{x}{7} \right| - 3 = -2$$

$$\begin{array}{r} \left| \frac{x}{7} \right| - 3 = -2 \\ +3 \quad +3 \\ \hline \end{array}$$

$$\left| \frac{x}{7} \right| = 1$$

$$(7) \frac{x}{7} = 1(7) \quad (7) \frac{x}{7} = -1(7)$$

$$x = 7$$

$$x = -7$$

$$10) -5|b-4| = -15$$

$$\begin{array}{r} -5|b-4| = -15 \\ \hline -5 \quad -5 \end{array}$$

$$|b-4| = 3$$

$$b-4 = 3$$

$$\begin{array}{r} b-4 = 3 \\ +4 \quad +4 \\ \hline \end{array}$$

$$b = 7$$

$$b-4 = -3$$

$$\begin{array}{r} b-4 = -3 \\ +4 \quad +4 \\ \hline \end{array}$$

$$b = 1$$