

INSTRUCTIONS: Attempt to solve each problem by yourself. If you aren't sure, try your best and then move on to the next problem. It is ok if you aren't sure, but it is not ok not to try. Only write in the left column.

$6x - 1 + 6x = 11$ $\begin{array}{r} 12x - 1 = 11 \\ +1 \quad +1 \\ \hline 12x = 12 \end{array} \rightarrow x = 1$	<p>Check:</p> $6(1) - 1 + 6(1) \stackrel{?}{=} 11$ $6 - 1 + 6 = 11$ $5 + 6 = 11 \checkmark$
$(x+3)^2 - 4 = 0$ $\begin{array}{r} +4 \quad +4 \\ \hline \sqrt{(x+3)^2} = \sqrt{4} \end{array}$ $x+3 = 2 \quad x+3 = -2$ $x = -1 \quad x = -5$ <p>OR</p> $x^2 + 6x + 9 - 4 = 0$ $x^2 + 6x + 5 = 0$ $(x+3)(x+1) = 0$ $x = -3, x = -1$	<p>Check:</p> $\left. \begin{array}{l} (-5+3)^2 - 4 \stackrel{?}{=} 0 \\ (-2)^2 - 4 = 0 \\ 4 - 4 = 0 \end{array} \right\} \begin{array}{l} (-1+3)^2 - 4 \stackrel{?}{=} 0 \\ (2)^2 - 4 = 0 \\ 4 - 4 = 0 \end{array}$
$-5x - 8(1 + 7x) = -8$ $-5x - 8 - 56x = -8$ $\begin{array}{r} -61x - 8 = -8 \\ +8 \quad +8 \\ \hline -61x = 0 \end{array} \rightarrow x = 0$	<p>Check:</p> $-5(0) - 8(1 + 7(0)) \stackrel{?}{=} -8$ $0 - 8(1 + 0) = -8$ $-8(1) = -8 \checkmark$
$2\sqrt{x+3} - 1 = 7$ $\begin{array}{r} +1 \quad +1 \\ \hline 2\sqrt{x+3} = 8 \end{array}$ $\frac{2\sqrt{x+3}}{2} = \frac{8}{2}$ $\sqrt{x+3} = 4$ $x+3 = 16$ $x = 13$	<p>Check:</p> $2\sqrt{13+3} - 1 = 7$ $2\sqrt{16} - 1 = 7$ $2 \cdot 4 - 1 = 7$ $8 - 1 = 7 \checkmark$
$5x \left(\frac{1}{x} = \frac{6}{5x} + 1 \right) \cdot 5x$ $\frac{5x}{x} = \frac{30x}{5x} + 5x$ $5 = 6 + 5x$ $\begin{array}{r} -6 \quad -6 \\ \hline -1 = 5x \\ \frac{-1}{5} = x \end{array}$	<p>Check:</p> $\frac{1}{(-1/5)} \stackrel{?}{=} \frac{6}{5(-1/5)} + 1$ $-5 = \frac{6}{-1} + 1$ $-5 = -6 + 1 \checkmark$

$$\begin{array}{r}
 4x + 2y = 10 \\
 2(x - y = 13) \cdot 2 \rightarrow + (2x - 2y = 26) \\
 \hline
 6x = 36 \\
 \frac{6x}{6} = \frac{36}{6} \\
 \text{Plug in } x \\
 6 - y = 13 \\
 -6 \quad -6 \rightarrow -y = 7 \quad y = -7
 \end{array}$$

Check:

$$\begin{array}{l}
 4(6) + 2(-7) \stackrel{?}{=} 10 \\
 24 + -14 = 10 \\
 \checkmark
 \end{array}$$

$$\begin{array}{r}
 -3 - 6(4x + 6) > -111 \\
 -3 - 24x - 36 > -111 \\
 -24x - 39 > -111 \\
 +39 \quad +39 \\
 -24x > -72 \quad \nearrow \\
 \frac{-24x}{-24} > \frac{-72}{-24} \\
 x < 3
 \end{array}$$

Check:

If $x=2$,

$$\begin{array}{l}
 -3 - 6(4(2) + 6) > -111 \\
 -3 - 6(8 + 6) > -111 \\
 -3 - 6(14) > -111 \\
 -3 - 84 > -111 \\
 -87 > -111 \quad \checkmark
 \end{array}$$

$$\begin{array}{r}
 2 - 5|5x - 5| = -73 \\
 -2 \quad -2 \\
 -5|5x - 5| = -75 \\
 \frac{-5}{-5} \quad \frac{-75}{-5} \\
 |5x - 5| = 15 \\
 \begin{array}{l}
 5x - 5 = 15 \\
 +5 \quad +5 \\
 5x = 20 \\
 \frac{5x}{5} = \frac{20}{5} \\
 x = 4 \\
 5x - 5 = -15 \\
 +5 \quad +5 \\
 5x = -10 \\
 \frac{5x}{5} = \frac{-10}{5} \\
 x = -2
 \end{array}
 \end{array}$$

Check:

$$\begin{array}{l}
 2 - 5|5(4) - 5| \stackrel{?}{=} -73 \\
 2 - 5|20 - 5| = -73 \\
 2 - 5|15| = -73 \\
 2 - 75 = -73 \\
 \checkmark
 \end{array}
 \quad
 \begin{array}{l}
 2 - 5|5(-2) - 5| \stackrel{?}{=} -73 \\
 2 - 5|-10 - 5| = -73 \\
 2 - 5|-15| = -73 \\
 2 - 75 = -73 \\
 \checkmark
 \end{array}$$

$$\begin{array}{r}
 \frac{x+10}{x-7} = \frac{8}{9} \cdot (x-7) \\
 9(x+10) = \frac{8(x-7)}{9} \cdot 9 \\
 9x + 90 = 8x - 56 \\
 -8x \quad -8x \\
 x + 90 = -56 \rightarrow x = -146
 \end{array}$$

Check:

$$\begin{array}{l}
 \frac{-146 + 10}{-146 - 7} \stackrel{?}{=} \frac{8}{9} \\
 \frac{-136}{-153} = \frac{8}{9} \quad \checkmark
 \end{array}$$

$$\begin{array}{r}
 x^2 - 13x = 30 \\
 -30 - 30 \\
 x^2 - 13x - 30 = 0 \\
 (x - 15)(x + 2) = 0 \\
 x = 15, x = -2
 \end{array}$$

Check:

$$\begin{array}{l}
 (15)^2 - 13(15) = 30 \\
 225 - 195 = 30 \\
 \checkmark
 \end{array}
 \quad
 \begin{array}{l}
 (-2)^2 - 13(-2) = 30 \\
 4 + 26 = 30 \\
 \checkmark
 \end{array}$$