

Variables on both sides

Key

Solve for x. Show all your work/steps!!

1.) $3x + 2 = -2x - 8$

$$\begin{array}{r} +2x \quad +2x \\ 5x + 2 = -8 \\ -2 \quad -2 \\ \hline 5x = -10 \\ \frac{5x}{5} = \frac{-10}{5} \\ x = -2 \end{array}$$

2.) $8x - 7 = 7x - 2$

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

3.) $-12 + 5x = 15 - 4x$

$$\begin{array}{r} +4x \quad +4x \\ -12 + 9x = 15 \\ +12 \quad +12 \\ \hline 9x = 27 \\ \frac{9x}{9} = \frac{27}{9} \\ x = 3 \end{array}$$

4.) $-x - 11 = 2x + 4$

$$\begin{array}{r} +1x \quad +1x \\ -11 = 3x + 4 \\ -4 \quad -4 \\ \hline -15 = 3x \\ \frac{-15}{3} = \frac{3x}{3} \\ x = -5 \end{array}$$

5.) $4x + 9 = -8x - 15$

$$\begin{array}{r} +8x \quad +8x \\ 12x + 9 = -15 \\ -9 \quad -9 \\ \hline 12x = -24 \\ \frac{12x}{12} = \frac{-24}{12} \\ x = -2 \end{array}$$

6.) $22x + 11 = 4x - 7$

$$\begin{array}{r} -4x \quad -4x \\ 18x + 11 = -7 \\ -11 \quad -11 \\ \hline 18x = -18 \\ \frac{18x}{18} = \frac{-18}{18} \\ x = -1 \end{array}$$

7.) $17 + 4x = -3 + 6x$

$$\begin{array}{r} -4x \quad -4x \\ 17 = -3 + 2x \\ +3 \quad +3 \\ \hline 20 = 2x \\ \frac{20}{2} = \frac{2x}{2} \\ x = 10 \end{array}$$

8.) $15x - 22 = 7x + 18$

$$\begin{array}{r} -7x \quad -7x \\ 8x - 22 = 18 \\ +22 \quad +22 \\ \hline 8x = 40 \\ \frac{8x}{8} = \frac{40}{8} \\ x = 5 \end{array}$$

9.) $4x + 7 = 14 + 3x$

$$\begin{array}{r} -3x \quad -3x \\ 1x + 7 = 14 \\ -7 \quad -7 \\ \hline x = 7 \end{array}$$

10.) $7(x + 3) = 6(x - 3)$

$$\begin{array}{r} 7x + 21 = 6x - 18 \\ -6x \quad -6x \\ 1x + 21 = -18 \\ -21 \quad -21 \\ \hline x = -39 \end{array}$$

11.) $3x - 6 + 2x = -2 + x$

$$\begin{array}{r} 5x - 6 = -2 + x \\ -1x \quad -1x \\ 4x - 6 = -2 \\ +6 \quad +6 \\ \hline 4x = 4 \\ \frac{4x}{4} = \frac{4}{4} \quad x = 1 \end{array}$$

12.) $2(2x - 5) = -2(x + 2)$

$$\begin{array}{r} 4x - 10 = -2x - 4 \\ +2x \quad +2x \\ 6x - 10 = -4 \\ +10 \quad +10 \\ \hline 6x = 6 \\ \frac{6x}{6} = \frac{6}{6} \quad x = 1 \end{array}$$