

Math 8 Algebra

Solve for X - Expert

Name: Key  
Teagen

Make sure that you show your work!

$$\begin{aligned}
 1. \quad & 2x + 12 = 2x + 3 \\
 & \quad \quad -12 \quad -12 \\
 & \quad \quad -2x \quad -2x \\
 & \quad \quad \underline{2x = 2x - 9} \\
 & \quad \quad 0 = -9 \\
 & \quad \quad x = \emptyset
 \end{aligned}$$

$$\begin{aligned}
 2. \quad & 14y - 3 = 4y + 6 \\
 & \quad \quad +3 \quad +3 \\
 & \quad \quad 14y = 4y + 9 \\
 & \quad \quad -4y \quad -4y \\
 & \quad \quad \underline{10y = 9} \\
 & \quad \quad \frac{10}{10} \quad \frac{-10}{-10} \\
 & \quad \quad \underline{y = \frac{9}{10}}
 \end{aligned}$$

$$\begin{aligned}
 3. \quad & 4x - 3 = 3x + 9 \\
 & \quad \quad +3 \quad +3 \\
 & \quad \quad \underline{4x = 3x + 12} \\
 & \quad \quad -3x \quad -3x \\
 & \quad \quad \underline{1x = 12} \\
 & \quad \quad \underline{x = 12}
 \end{aligned}$$

$$\begin{aligned}
 4. \quad & 15y - 10 = 7y + 16 \\
 & \quad \quad +10 \quad +10 \\
 & \quad \quad 15y = 7y + 26 \\
 & \quad \quad -7y \quad -7y \\
 & \quad \quad \underline{8y = 26} \\
 & \quad \quad \frac{8}{8} \quad \frac{26}{8} \\
 & \quad \quad \underline{y = \frac{13}{4}}
 \end{aligned}$$

$$\begin{aligned}
 5. \quad & 8x + 1 = 3x + 4 \\
 & \quad \quad -1 \quad -1 \\
 & \quad \quad \underline{8x = 3x + 3} \\
 & \quad \quad -3x \quad -3x \\
 & \quad \quad \underline{5x = 3} \\
 & \quad \quad \frac{5}{5} \quad \frac{3}{5} \\
 & \quad \quad \underline{x = \frac{3}{5}}
 \end{aligned}$$

$$\begin{aligned}
 6. \quad & 2y + 18 = 3y + 3 \\
 & \quad \quad -18 \quad -18 \\
 & \quad \quad \underline{2y = 3y - 15} \\
 & \quad \quad -3y \quad -3y \\
 & \quad \quad \underline{-y = -15} \\
 & \quad \quad \frac{-1}{-1} \quad \frac{-15}{-1} \\
 & \quad \quad \underline{y = 15}
 \end{aligned}$$

$$\begin{aligned}
 7. \quad & 5x - 2 = 2x + 10 \\
 & \quad \quad +2 \quad +2 \\
 & \quad \quad \underline{5x = 2x + 12} \\
 & \quad \quad -2x \quad -2x \\
 & \quad \quad \underline{3x = 12} \\
 & \quad \quad \frac{3}{3} \quad \frac{12}{3} \\
 & \quad \quad \underline{x = 4}
 \end{aligned}$$

$$\begin{aligned}
 8. \quad & (-3x) + 8 = 14x + 14 \\
 & \quad \quad -8 \quad -8 \\
 & \quad \quad \underline{(-3x) = 14x + 6} \\
 & \quad \quad -14x \quad -14x \\
 & \quad \quad \underline{-17x = 6} \\
 & \quad \quad \frac{-17}{-17} \quad \frac{6}{-17} \\
 & \quad \quad \underline{x = -\frac{6}{17}}
 \end{aligned}$$

$$\begin{aligned}
 9. \quad & (-5y) - 3 = 2y + 4 \\
 & \quad \quad +3 \quad +3 \\
 & \quad \quad \underline{(-5y) = 2y + 7} \\
 & \quad \quad -2y \quad -2y \\
 & \quad \quad \underline{-7y = 7} \\
 & \quad \quad \frac{-7}{-7} \quad \frac{7}{-7} \\
 & \quad \quad \underline{y = -1}
 \end{aligned}$$

$$\begin{aligned}
 10. \quad & (-4x) - 5 = (-7x) - 7 \\
 & \quad \quad +5 \quad +5 \\
 & \quad \quad \underline{(-4x) = (-7x) - 2} \\
 & \quad \quad +7x \quad +7x \\
 & \quad \quad \underline{3x = -2} \\
 & \quad \quad \frac{3}{3} \quad \frac{-2}{3} \\
 & \quad \quad \underline{x = -\frac{2}{3}}
 \end{aligned}$$

$$\begin{aligned}
 11. \quad & (-6x) - 4 = 2x + 12 \\
 & \quad \quad +4 \quad +4 \\
 & \quad \quad \underline{(-6x) = 2x + 16} \\
 & \quad \quad -2x \quad -2x \\
 & \quad \quad \underline{-8x = 16} \\
 & \quad \quad \frac{-8}{-8} \quad \frac{16}{-8} \\
 & \quad \quad \underline{x = -2}
 \end{aligned}$$

$$\begin{aligned}
 12. \quad & (-7x) - 12 = 3y + 20 \\
 & \quad \quad +12 \quad +12 \\
 & \quad \quad \underline{(-7x) = 3y + 32} \\
 & \quad \quad \underline{-7x - 3y = 32}
 \end{aligned}$$

$$13. \begin{array}{r} (-18x) + 2 = 2x + 4 \\ (-18x) = 2x - 2 \\ -2x \quad -2x \\ \hline -20x = -2 \\ -20 \quad -20 \end{array}$$

$$x = \frac{1}{10}$$

$$14. \begin{array}{r} 14y - 7 = 2y + 14 \\ +7 \quad +7 \end{array}$$

$$14y = 2y + 21 \\ -2y \quad -2y$$

$$\frac{12y}{12} = \frac{21}{12}$$

$$y = \frac{7}{4}$$

$$15. \begin{array}{r} 13y - 2 = 15y + 18 \\ +2 \quad +2 \end{array}$$

$$13y = 15y + 20 \\ -15y \quad -15y$$

$$\frac{-2y}{-2} = \frac{20}{-2}$$

$$y = -10$$

$$16. \begin{array}{r} 12x - 5 = 2x + 4 \\ +5 \quad +5 \end{array}$$

$$12x = 2x + 9 \\ -2x \quad -2x$$

$$\frac{10x}{10} = \frac{9}{10}$$

$$x = \frac{9}{10}$$

$$17. \begin{array}{r} 12x - 2 = (-5x) + 16 \\ +2 \quad +2 \end{array}$$

$$12x = (-5x) + 18 \\ +5x \quad +5x$$

$$\frac{17x}{17} = \frac{18}{17}$$

$$x = \frac{18}{17}$$

$$18. \begin{array}{r} (-12x) + 12 = 4x + 14 \\ -12 \quad -12 \end{array}$$

$$(-12x) = 4x + 2 \\ -4x \quad -4x$$

$$\frac{-16x}{-16} = \frac{2}{-16}$$

$$x = -\frac{1}{8}$$

$$19. \begin{array}{r} (-3x) - 10 = 3x + (-14) \\ +10 \quad +10 \end{array}$$

$$(-3x) = 3x + (-4) \\ -3x \quad -3x$$

$$\frac{-6x}{-6} = \frac{-4}{-6}$$

$$x = \frac{2}{3}$$

$$20. \begin{array}{r} 15y + 15 = 10y + 13 \\ -15 \quad -15 \end{array}$$

$$15y = 10y - 2 \\ -10y \quad -10y$$

$$\frac{5y}{5} = \frac{-2}{5}$$

$$y = -\frac{2}{5}$$

$$21. \begin{array}{r} 8x - 14 = 4x + 2 \\ +14 \quad +14 \end{array}$$

$$8x = 4x + 16 \\ -4x \quad -4x$$

$$\frac{4x}{4} = \frac{16}{4}$$

$$x = 4$$

$$22. \begin{array}{r} 8x + 12 = 2x + 12 \\ -12 \quad -12 \end{array}$$

$$8x = 2x \\ -2x \quad -2x$$

$$\frac{6x}{6} = \frac{0}{6}$$

$$x = 0$$

$$23. \begin{array}{r} 14m + 18 = 2m + 4 \\ -18 \quad -18 \end{array}$$

$$14m = 2m - 14 \\ -2m \quad -2m$$

$$\frac{12m}{12} = \frac{-14}{12}$$

$$m = -\frac{7}{6}$$

$$24. \begin{array}{r} (-13x) + 2 = (-2x) + 11 \\ -2 \quad -2 \end{array}$$

$$(-13x) = (-2x) + 9 \\ +2x \quad +2x$$

$$\frac{-11x}{-11} = \frac{9}{-11}$$

$$x = -\frac{9}{11}$$