

Math 8 Algebra

Solve for X - Apprentice

Name: Key
(Teagen)

Make sure that you show your work!

$$1. \quad \begin{array}{r} -2 \qquad -2 \\ 4x + 2 = 2x + 10 \\ 4x = 2x + 8 \\ \frac{2x}{2} = \frac{8}{2} \\ x = 4 \end{array}$$

$$2. \quad \begin{array}{r} +3 \qquad +3 \\ 4y - 3 = y + 6 \\ 4y = y + 6 \\ \frac{3y}{3} = \frac{6}{3} \\ y = 2 \end{array}$$

$$3. \quad \begin{array}{r} +3 \qquad +3 \\ 8x - 3 = 3x + 17 \\ 8x = 3x + 20 \\ \frac{5x}{5} = \frac{20}{5} \\ x = 4 \end{array}$$

$$4. \quad \begin{array}{r} +10 \qquad +10 \\ 5y - 10 = 7y + 6 \\ -7y - 7y \\ 5y = 7y + 16 \\ -2y = 16 \\ \frac{-2y}{-2} = \frac{16}{-2} \\ y = -8 \end{array}$$

$$5. \quad \begin{array}{r} -1 \qquad -1 \\ 6x + 1 = 3x + 19 \\ -3x - 3x \\ 6x = 3x + 18 \\ \frac{3x}{3} = \frac{18}{3} \\ x = 6 \end{array}$$

$$6. \quad \begin{array}{r} -10 \qquad -10 \\ 2y + 10 = 3y + 2 \\ -3y - 3y \\ 2y = 3y - 8 \\ -y = -8 \\ \frac{-y}{-1} = \frac{-8}{-1} \\ y = 8 \end{array}$$

$$7. \quad \begin{array}{r} +20 \qquad +20 \\ 11x - 20 = x + 30 \\ -x - x \\ 11x = x + 50 \\ \frac{10x}{10} = \frac{50}{10} \\ x = 5 \end{array}$$

$$8. \quad \begin{array}{r} -4 \qquad -4 \\ (-2x) + 8 = 4x + 4 \\ (-2x) + 4 = 4x + 2x \\ +2x \\ 4 = 6x \\ \frac{4}{6} = \frac{6x}{6} \\ \frac{4}{6} = x \\ \frac{2}{3} = x \end{array}$$

$$9. \quad \begin{array}{r} +3 \qquad +3 \\ (-3y) - 3 = 4y + 4 \\ -4y - 4y \\ (-3y) = 4y + 7 \\ -7y = 7 \\ \frac{-7y}{-7} = \frac{7}{-7} \\ y = -1 \end{array}$$

$$10. \quad \begin{array}{r} +5 \qquad +5 \\ (-4x) - 5 = (-2x) - 11 \\ (-4x) = (-2x) - 6 \\ +2x \quad +2x \\ -2x = -6 \\ \frac{-2x}{-2} = \frac{-6}{-2} \\ x = 3 \end{array}$$

$$11. \quad \begin{array}{r} +4 \qquad +4 \\ (-6x) - 4 = 2x + 20 \\ (-6x) = 2x + 24 \\ -2x \quad -2x \\ -8x = 24 \\ \frac{-8x}{-8} = \frac{24}{-8} \\ x = -3 \end{array}$$

$$12. \quad \begin{array}{r} +2 \qquad +2 \\ (-7x) - 2 = 3y + 28 \\ -3y - 3y \\ -7x = 3y + 30 \\ -10x = 30 \\ \frac{-10x}{-10} = \frac{30}{-10} \\ x = -3 \end{array}$$

$$13. (-8x) + 2 = 2x + 22$$

$$(-8x) = 2x + 20$$

$$\begin{array}{r} -2x \\ -2x \end{array}$$

$$\frac{-10x = 20}{-10 \quad -10}$$

$$x = -2$$

$$14. 4y - 10 = 2y + 14$$

$$4y = 2y + 24$$

$$\begin{array}{r} -2y \\ -2y \end{array}$$

$$\frac{2y = 24}{2 \quad 2}$$

$$y = 12$$

$$15. 3y - 2 = 5y + 18$$

$$3y = 5y + 20$$

$$\begin{array}{r} -5y \\ -5y \end{array}$$

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

$$y = -10$$

$$16. 11x - 5 = 2x + 4$$

$$11x = 2x + 9$$

$$\begin{array}{r} -2x \\ -2x \end{array}$$

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

$$x = 1$$

$$17. 12x - 2 = (-2x) + 26$$

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

$$12x = (-2x) + 28$$

$$\begin{array}{r} +2x \\ +2x \end{array}$$

$$\frac{14x = 28}{14 \quad 14}$$

$$x = 2$$

$$18. (-2x) + 12 = 4x + 4$$

$$(-2x) + 8 = 4x$$

$$\begin{array}{r} +2x \\ +2x \end{array}$$

$$\frac{8 = 6x}{6 \quad 6}$$

$$\frac{8}{6} = x$$

$$\frac{4}{3} = x$$

$$19. (-3x) - 10 = 3x + (-4)$$

$$(-3x) = 3x + 6$$

$$\begin{array}{r} -3x \\ -3x \end{array}$$

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

$$x = -1$$

$$20. 5y + 15 = 10y + 5$$

$$5y = 10y - 10$$

$$\begin{array}{r} -10y \\ -10y \end{array}$$

$$\frac{-5y = -10}{-5 \quad -5}$$

$$y = 2$$

$$21. 8x - 14 = 4x + 2$$

$$8x = 4x + 16$$

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

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

$$x = 4$$

$$22. 12x + 12 = 2x + 12$$

$$\begin{array}{r} -12 \\ -12 \end{array}$$

$$\begin{array}{r} -2x \\ -2x \end{array}$$

$$12x = 2x$$

$$\frac{10x = 0}{10 \quad 10}$$

$$x = 0$$

$$23. 4m + 20 = 2m + 4$$

$$4m = 2m - 16$$

$$\begin{array}{r} -2m \\ -2m \end{array}$$

$$\frac{2m = -16}{2 \quad 2}$$

$$m = -8$$

$$24. (-3x) + 2 = (-2x) + 11$$

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

$$(-3x) = (-2x) + 9$$

$$\begin{array}{r} +2x \\ +2x \end{array}$$

$$\frac{-1x = 9}{-1 \quad -1}$$

$$x = -9$$