



1. True
2. A solution to an equation is the value or values for variables such that the left side equals the right side of the equation.
3. YES

$$4. \quad x=3 \qquad -4x = -12$$
$$\frac{-4x}{-4} = \frac{-12}{-4}$$
$$x=3$$

$$5. \quad y=27 \qquad \frac{1}{3}y = 9$$
$$\frac{3}{1} \cdot \frac{1}{3}y = 9 \cdot \frac{3}{1}$$
$$y=27$$

$$6. \quad x=-5 \qquad -x-5 = -10 \quad x=-5?$$

is not the solution

$$-(-5)-5 = -10$$
$$5-5 = -10$$
$$0 = -10 \quad \underline{\text{False}}$$

$x=-5$  is not the solutions

7.  $w=6$

$$\begin{aligned} 3(w-1) &= 15 \\ 3w - 3 &= 15 \\ 3w - 3 &= 15 \\ &+3 \quad +3 \\ \hline 3w &= 18 \\ \frac{3w}{3} &= \frac{18}{3} \\ w &= 6 \end{aligned}$$

8.  $t = -\frac{30}{17}$

$$\begin{aligned} 8t + 9(t+2) &= -12 \\ 8t + 9t + 18 &= -12 \\ 17t + 18 &= -12 \\ 17t &= -30 \\ t &= -\frac{30}{17} \end{aligned}$$

9.

$y=4$   
not the  
solution

$$\begin{aligned} -3y + 2(y+3) &= y-4 \quad y=4? \\ -3y + 2y + 6 &= y-4 \\ -1y + 6 &= y-4 \\ -1(4) + 6 &= 4-4 \\ 2 &= 0 \quad \text{False} \\ y=4 &\text{ is not the solution} \end{aligned}$$

$$\begin{aligned}
 10. \quad & -5(3w+1) = 4(w-2) \\
 & w = 3/19 \quad -15w - 5 = 4w - 8 \\
 & \quad \quad \quad -19w = -3 \\
 & \quad \quad \quad w = 3/19
 \end{aligned}$$

$$\begin{aligned}
 11. \quad & 7z - 9z + 3(z-9) = 10z + 1 \\
 & 7z - 9z + 3z - 27 = 10z + 1 \\
 & \quad \quad \quad 1z - 27 = 10z + 1 \\
 & z = -\frac{28}{9} \quad -9z = 28 \\
 & \quad \quad \quad z = -\frac{28}{9}
 \end{aligned}$$

$$\begin{aligned}
 12. \quad & 5x + 10 - x + 14 = -2x + 20 \\
 & x = -2/3 \quad 4x + 24 = -2x + 20 \\
 & \quad \quad \quad 6x = -4 \\
 & \quad \quad \quad x = \frac{-4}{6} = -\frac{2}{3}
 \end{aligned}$$

$$\begin{aligned}
 13. \quad & 4r + 2(2r-3) - r = 3(r-3) \\
 & r = -3/4 \quad 4r + 4r - 6 - r = 3r - 9 \\
 & \quad \quad \quad 7r - 6 = 3r - 9 \\
 & \quad \quad \quad 4r = -3 \\
 & \quad \quad \quad r = -3/4
 \end{aligned}$$

14.

$$3xh = 9 \quad \text{solve for } h$$

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

$$\frac{3xh = 9}{3x \quad 3x}$$

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

15.

$$4x + 6y = 12 \quad \text{solve for } y$$

$$y = -\frac{2}{3}x + 2$$

$$\begin{array}{r} 4x + 6y = 12 \\ -4x \quad -4x \\ \hline \end{array}$$

$$6y = 12 - 4x$$

$$\frac{6y}{6} = \frac{-4x + 12}{6}$$

$$y = -\frac{2}{3}x + 2$$

16.

$$y = -3x + 7 \quad \text{solve for } x$$

$$x = -\frac{y}{3} + \frac{7}{3}$$

$$-3x + 7 = y$$

$$-3x = y - 7$$

$$x = -\frac{y}{3} + \frac{7}{3}$$

$$17. \quad p = -1.396$$

$$3.4(1.9 - p) + 1.02p = 6.1(p + 3)$$

$$6.46 - 3.4p + 1.02p = 6.1p + 18.3$$

$$-2.38p + 6.46 = 6.1p + 18.3$$

$$-8.48p = 11.84$$

$$p = -1.396$$

$$18. \quad \frac{3}{4} + x = 3x - \frac{1}{3}$$

$$x = \frac{13}{24}$$

$$-2x = -\frac{1}{3} - \frac{3}{4}$$

$$-2x = -\frac{4}{12} - \frac{9}{12}$$

$$-2x = -\frac{13}{12}$$

$$x = \frac{13}{24}$$

$$19. \quad \frac{1}{3}y = -5y + \frac{1}{4}$$

$$y = \frac{3}{64}$$

$$5\frac{1}{3}y = \frac{1}{4}$$

$$\frac{16}{3}y = \frac{1}{4}$$

$$y = \frac{1}{4} \cdot \frac{3}{16}$$

$$y = \frac{3}{64}$$

$$20. \quad x^2 = 4 \quad \text{is solution } x = -2?$$

$$x = -2 \quad (-2)^2 = 4$$

$$\text{is a solution,} \quad 4 = 4$$

$$\text{so is } x = 2 \quad \text{True}$$

$$\ast (-2)^2 = (-2)(-2)$$

$$-2^2 = -4$$