

$$12. \frac{5}{12}x + \frac{4}{3}x - 2x$$

$$\frac{5x + 4x - 2x}{12}$$

$$\frac{5}{12}x + \frac{4 \cdot 4}{3 \cdot 4}x - \frac{2 \cdot 12}{1 \cdot 12}x$$

$$\frac{5}{12}x + \frac{16}{12}x - \frac{24}{12}x = \frac{-3}{12}x = -\frac{1}{4}x \text{ OR } -\frac{x}{4}$$

$$7. \frac{2(x-1)}{(x+1)(x-1)} - \frac{4(x+1)}{(x-1)(x+1)}$$

$$= \frac{2x-2}{(x+1)(x-1)} - \frac{4x+4}{(x+1)(x-1)}$$

$$\frac{2x-2-4x-4}{(x+1)(x-1)}$$

$$= \frac{-2x-6}{(x+1)(x-1)} \text{ OR } \frac{-2(x+3)}{(x+1)(x-1)}$$

14.3 Solving Equations

Objectives:

1. Write and solve linear equations in one variable

2. Solve a literal equation

Formula

$$A = l \cdot w$$

#1 Rule of Algebra: be fair to everyone!

equations \rightarrow both sides!

Solving:

inverse \rightarrow undo

$\div \leftrightarrow \cdot$

$+$ \leftrightarrow $-$

Solving an equation

$$\frac{SW}{H} + \cancel{H} = P - \cancel{F}$$

$$\cancel{*} \left(\frac{SW}{H} \right) = (P - F) \cdot H$$

$$\frac{SW}{\cancel{W}} = \frac{H(P - F)}{W}$$

$$S = \frac{H(P - F)}{W}$$

$\frac{P = mv}{m}$ Solve for v. If $m=5$ and $P=35$, what is v?

$$v = \frac{P}{m} \rightarrow v = \frac{35}{5} = \boxed{v=7}$$

$2x = \frac{1}{2}at^2$ Solve for a. If $x=57$ and $t=7$ what is a?

$$\frac{2x}{t^2} = \frac{at^2}{t^2} \quad a = \frac{2x}{t^2} \quad 2.33$$

$t \cdot P = \frac{w}{t}$ Solve for t. If $P=75$ and $w=1200$, what is t?

$$\frac{t \cdot P}{P} = \frac{w}{P}$$

$$t = \frac{w}{P} \rightarrow \frac{1200}{75} = \boxed{16}$$

$I = P(1 + rt)$ for t

$$\frac{I}{P} = 1 + rt$$

$$\frac{I}{P} - 1 = rt$$

$$t = \frac{\frac{I}{P} - 1}{r}$$

for h

$$2A = \frac{1}{2}h(b_1 + b_2)$$

$$2A = h(b_1 + b_2)$$

$$h = \frac{2A}{b_1 + b_2}$$

Solve each equation:

$5x + 15 = 2x$

$$5x + 15 = 2x$$

$$-15$$

$$5x - 2x - 15$$

$$-2x - 15$$

$$3x = -15$$

$$x = -5$$

$5x + 15 = 2x$

$$3x + 15 = 0$$

$$3x = -15$$

$$x = -5$$

$5x + 15 = 2x$

$$-9x$$

$$15 = -3x$$

$$-3 = -3$$

$$x = -5$$

$\frac{1}{3}x - \frac{4}{3} = -\frac{1}{6}x - 1$

$$x > \#5$$

$$\frac{1}{6}x + \frac{4}{3} = \frac{1}{6}x + \frac{4}{3}$$

$$\frac{2}{3}x + \frac{1}{6}x = -\frac{3}{3} - \frac{1}{3} + \frac{4}{3}$$

$$\frac{2}{6}x + \frac{1}{6}x = -\frac{3}{3} + \frac{4}{3}$$

$$\frac{3}{6}x = -\frac{3}{3} + \frac{4}{3}$$

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

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

$$\frac{1}{3}x = (-x + 4) \cdot 3$$

$$x = -3x + 12$$

$$+3x \quad +3x$$

$$\frac{4x}{4} = \frac{12}{4}$$

$$x = 3$$

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

$$\frac{1}{3} + \frac{1 \cdot x}{1 \cdot 3}$$

$$\frac{1}{3} + \frac{3}{3} = \frac{4}{3}$$

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

$$x = 3$$

$$\frac{4}{3} \cdot \frac{3}{4} = \frac{12}{4}$$

Solve using your calculator

$$0.24x + 1.1 = 2.56x - 1.5$$

$$1.1 = 2.32x - 1.8$$

$$\frac{2.6}{2.32} = \frac{2.32x}{2.32} \Rightarrow x = 1.12$$

$$-0.75x + 12.42 = 4.36$$

$$\begin{array}{r} -12.42 \quad -12.42 \\ -0.75x = -8.06 \\ \hline -0.75 \quad -0.75 \end{array}$$

$$x = 10.75$$

Amelia has a job baby-sitting for a neighbor. She is paid \$20 plus \$2.50 for each hour on the job. If Amelia wants to earn \$40 to buy a new sweater, how many hours would she need to work?

$$\begin{aligned}
 40 &= 20 + 2.50h \\
 -20 &-20 \\
 \hline
 20 &= 2.50h \\
 \frac{2.50}{2.50} &\frac{2.50}{2.50} \\
 \hline
 h &= 8h
 \end{aligned}$$

Terry has two different jobs in selling insurance. One job pays him \$75 per week plus \$5 for each policy sold. The other pays him \$51 per week plus \$8 for each policy sold. How many policies would Terry have to sell to make the same total salary in either job?

$$\begin{aligned}
 75 + 5p &= 51 + 8p \\
 \hline
 p &= 8
 \end{aligned}$$