

## 1-2 – Solving Multi-step Equations

### Objectives:

- I can solve an equation doing 2 or more steps
- I can distribute and combine like terms



## Vocabulary

Distribute:

Multiply to all terms in  
parenthesis

Like terms:

Terms with same variable ↳  
same exponents

Isolate:

to get by itself

OR

Solve

## Combining like terms:

$$\boxed{4x^2}$$

$$\textcircled{-9}$$

$$\textcircled{3}$$

$$\heartsuit -2xy$$

$$\triangle -5k$$

$$\cancel{x^3}$$

$$\triangle 8k$$

$$\textcircled{-7}$$

$$\boxed{x^2}$$

$$\cancel{-2x^3}$$

$$\heartsuit -4xy$$

$$\textcircled{6}$$

$$\textcircled{0} = -7 + -9 + 3 + 6 = -7$$

$$\boxed{\phantom{0}} = x^2 + 4x^2 = 5x^2$$

$$\triangle = -5k + 8k = 3k$$

$$\heartsuit = -4xy + -2xy = -6xy$$

$$\cancel{\curvearrowright} = -2x^3 + 1x^3 = -x^3$$

$$5a + 6 - a + 7 - 2$$
$$4a + 11$$

$$\begin{aligned} & -11k + 2k - 7 + 5k - 2 \\ & -13k - 7 \\ & -3k - 5 \\ & -4k - 9 \end{aligned}$$

$$4x^2 + 6x + 5$$

Can't simplify

Distributing:

$$2(x - 3)$$
$$2x - 6$$

Multiply  
all terms in ( )

Do IT FIRST!

$$8(n+3) = 2 + 54$$

$$8n + 24 = 56$$

$$-24 \quad -24$$

$$8n = \frac{32}{8}$$

$$8$$

$$n = 4$$

PEMDAS

$$7 = -2(y - 4) + 6$$

$$7 = -2y + 8 + 6$$

$$7 = -2y + 14$$

$$-14$$

$$-14$$

$$-7 = -2y$$

$$-2$$

$$-2$$

$$3.5 = y$$

$$2/1$$

$$3(-4 + x) + 1 = 1$$

$$-12 + 3x + 1 = 1$$

$$-11 + 3x = 1$$

$$\frac{3x}{3} = \frac{12}{3}$$

$$x = 4$$

$$\text{Solve } 4(m - 2n) = 8 \text{ for } m$$

$$4m - 8n = 8$$

$$+8n \quad +8n$$

$$\frac{4m}{4} = \frac{8 + 8n}{4}$$

$$m = \frac{8 + 8n}{4}$$

$$m = 2 + 2n$$

$$4(x-2) + 2(x+1) = 3$$

$$4x - 8 + 2x + 2 = 3$$

$$6x - 6 = 3$$

$$+6 \quad +6$$

$$\frac{6x}{6} = \frac{9}{6}$$

$$x = 1.5$$

$$3/2 \text{ or } 1\frac{1}{2}$$

$$-2(a-b) + a - 4b = 7 \text{ for } b$$

$$-2a + 2b + a - 4b = 7$$

$$-1a - 2b = 7$$

$$+1a \quad +1a$$

$$\frac{-2b}{-2} = \frac{7+1a}{-2}$$

$$b = \frac{7+a}{-2}$$



Write an equation where the solution is  $x = -6$

The formula for the area of a triangle is  $A = \frac{1}{2}bh$  where  $A$  represents area,  $b$  represents the length of the base and  $h$  represents the height of the triangle.

a. Solve the formula for height,  $h$

$$\frac{2}{1} \cdot A = \frac{2}{1} \cdot \frac{1}{2} bh \quad \frac{2A}{b} = h$$

$$\frac{2A}{b} = \frac{bh}{b} \cdot b$$

b. Find the height of a triangle that has a base of 3cm and an area of  $12\text{cm}^2$

$$b = 3 \quad h = \frac{2A}{b}$$

$$A = 12 \quad h = \frac{2 \cdot 12}{3} \quad h = 8\text{cm}$$

