

## 2.1 Word Problems

- Steps:
1. Read carefully.  
(take notes, diagram...)
  2. Identify the variable(s) Form: Let "x="   
\*May need to identify more than one item.
  3. Set up the equation.  
\*Keywords
  4. Solve equation.
  5. Answer and check.

### Examples

1. 12 <sup>+ 2</sup> more than twice a number is 5 times the number. Find the number.

let  $x$  = the number

$$2x + 12 = 5x$$

$$12 = 5x - 2x$$

$$12 = 3x$$

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

$$4 = x$$

The number is 4.

2. The larger of two numbers is 7 more than 5 times the first. Their sum is 55. Find the numbers.

let  $x$  = first #  
 $5x + 7$  = larger #

$$\text{first \#} + \text{larger \#} = 55$$

$$x + (5x + 7) = 55$$

$$x + 5x + 7 = 55$$

$$6x + 7 = 55$$

$$6x = 55 - 7$$

$$6x = 48$$

$$x = \frac{48}{6}$$

$$x = 8$$

$$\begin{array}{l} 5x + 7 \\ 5(8) + 7 \\ 40 + 7 \\ 47 \end{array}$$

The first # is 8.  
The larger # is 47.

3. The second of three numbers is 4 less than 5 times the first. The third is 11 less than 4 times the first. If twice the first is increased by the third, the result is 25. Find the three numbers.

let  $x$  = 1<sup>st</sup> #

$5x - 4$  = 2<sup>nd</sup> #

$4x - 11$  = 3<sup>rd</sup> #

$$2(x) + (4x - 11) = 25$$

$$2x + 4x - 11 = 25$$

$$6x - 11 = 25$$

$$6x = 25 + 11$$

$$6x = 36$$

$$x = \frac{36}{6}$$

$$x = 6$$

$$\begin{array}{ll} 5x - 4 & 4x - 11 \\ 5(6) - 4 & 4(6) - 11 \\ 30 - 4 & 24 - 11 \\ 26 & 13 \end{array}$$

The 1<sup>st</sup> # is 6.  
The 2<sup>nd</sup> # is 26.  
The 3<sup>rd</sup> # is 13.

# HOMEWORK

Worksheet - HW 2.1 Word Problems