

The Solution of Word Problems

Step 1) Translate into algebraic symbols the relationship given or suggested by the words.

Step 2) Solve the equation

Step 3) Check by seeing if your answers agree with the stated conditions of the problem

Ex) If $4x - 3$ is seven less than $x + 16$, find x .

$$4x - 3 = x + 16 - 7$$

$$-x \quad -x$$

$$3x - 3 = 9$$

$$3x = 12$$

$$x = 4$$

Ex) Three numbers are such that the second is twice the first and the third is one less than three times the first. Their sum is 65. Find the numbers.

$$\text{let num } 1 = x \rightarrow \text{num } 1 = 11$$

$$\text{num } 2 = 2x \rightarrow \text{num } 2 = 22$$

$$\text{num } 3 = 3x - 1 \rightarrow \text{num } 3 = 32$$

$$x + 2x + 3x - 1 = 65$$

$$6x - 1 = 65$$

$$6x = 66$$

$$x = 11$$

Ex) Fred has \$8 more than Joe, together they have \$46. How much money does each have?

$$\text{Fred: } \$x + 8$$

$$\text{Fred} + \text{Joe} = 46$$

$$\text{Joe: } \$x$$

$$x + 8 + x = 46$$

$$2x = 38$$

$$x = 19$$

Joe has \$19, Fred has \$27

Ex) A number is multiplied by 4 and 7 is subtracted from the product. If the remainder is 33, find the original number.

33

$$\text{let number} = x$$

$$4x - 7 = 33$$

$$4x = 40$$

$$x = 10$$

The number is 10