

Directions: Read each problem carefully and show your work.

1. A number is 15 more than 3 times another number. If the sum of the two numbers is 87, find the numbers.

**Solution:**

Let the first number be  $x$  and the second number be  $y$ .

From the first statement:  $x = 3y + 15$

From the second statement:  $x + y = 87$

Substituting  $x = 3y + 15$  into  $x + y = 87$ :

$$3y + 15 + y = 87$$
$$4y + 15 = 87$$
$$4y = 87 - 15$$
$$4y = 72$$
$$y = \frac{72}{4}$$
$$y = 18$$

Substituting  $y = 18$  into  $x = 3y + 15$ :

$$x = 3(18) + 15$$
$$x = 54 + 15$$
$$x = 69$$

The numbers are 69 and 18.

**Problem 2**

2. A number is 10 less than 4 times another number. If the sum of the two numbers is 110, find the numbers.

**Solution:**

Let the first number be  $x$  and the second number be  $y$ .

From the first statement:  $x = 4y - 10$

From the second statement:  $x + y = 110$

Substituting  $x = 4y - 10$  into  $x + y = 110$ :

$$4y - 10 + y = 110$$
$$5y - 10 = 110$$
$$5y = 110 + 10$$
$$5y = 120$$
$$y = \frac{120}{5}$$
$$y = 24$$

Substituting  $y = 24$  into  $x = 4y - 10$ :

$$x = 4(24) - 10$$
$$x = 96 - 10$$
$$x = 86$$

The numbers are 86 and 24.

**Problem 3**

3. A number is 20 more than 2 times another number. If the sum of the two numbers is 140, find the numbers.

**Solution:**

Let the first number be  $x$  and the second number be  $y$ .

From the first statement:  $x = 2y + 20$

From the second statement:  $x + y = 140$

Substituting  $x = 2y + 20$  into  $x + y = 140$ :

$$2y + 20 + y = 140$$
$$3y + 20 = 140$$
$$3y = 140 - 20$$
$$3y = 120$$
$$y = \frac{120}{3}$$
$$y = 40$$

Substituting  $y = 40$  into  $x = 2y + 20$ :

$$x = 2(40) + 20$$
$$x = 80 + 20$$
$$x = 100$$

The numbers are 100 and 40.