

Algebra "Number" Word Problems

1) $x + 2x = 72$
 $3x = 72$
 $x = \frac{72}{3} = 24$

$2(24) + 24 = 72$
 $48 + 24 = 72$
 $72 = 72$

$n = 24$ (1st number)

48 (2nd number)

2) $x + y = 50$

$y = 50 - x$

$3x = 2y + 5$

$3x = 2(50 - x) + 5$

$3x = 100 - 2x + 5$

$3x = -2x - 105$

$3x + 2x = 105$

$5x = 105$

$x = \frac{105}{5} = 21$

5

$x = 21$ (1st number)

29 (2nd number)

3) $90 - x$

$90 - x = 4x$

$-x - 4x = -90$

$-5x = -90$

$x = \frac{-90}{-5} = 18$ (1st number)

90 (2nd number)

$4 \times 18 = 72$

$18 + 72 = 90$

Commented [1]: For #3, What is your second number? 90 is your starting number. Please explain.

$$4) \quad x + y = 53$$

$$3x = y + 19$$

$$y = 3x - 19$$

$$x + 3x - 19 = 53$$

$$4x = 53 + 19$$

$$4x = 72$$

$$x = \frac{72}{4}$$

18,

$$x = 18 \text{ (1st number)}$$

$$y = 3x - 19$$

$$y = 3(18) - 19$$

$$y = 54 - 19$$

$$y = 35$$

$$y = 35 \text{ (2nd number)}$$

$$5) \quad \text{Mr. Patton} = x$$

$$\text{Mrs. Patton} = y$$

$$\text{Carolyn} = z$$

$$x + y + z = 160$$

$$z = x + 10$$

$$x = 2y$$

Mr. Patton would drive 60 miles, Mrs. Patton would drive 30, and Carolyn would drive 70.

6) n = no of boys who attended the rock festival.
 y = no of girls who attended the rock festival.
 z = no of adults over the age of 50 that attended the rock festival.

$$n = 8,110 + y$$

$$y - 24,810 = z$$

$$n + y + z = 104,830$$

$$8,110 + y + y + y - 24,810 = 104,830$$

$$3y = 121,530$$

$$y = 40,510$$

$$n = 48,620$$

$$z = 15,700$$

