

SYSTEM OF EQUATIONS-WORD PROBLEMS #1

Directions: Find the answers to each situation below by setting up and solving a system of equations.

- 1) Jacob bought a total of 9 pizzas for his class party. The amount of *large* pizzas was twice the amount of *medium* pizzas. How many large and how many medium pizzas did he buy?

L - large
m - medium
 $m + L = 9$
 $L = 2m$

$$m + (2m) = 9$$

$$(m) + (2m) = 9$$

$$\frac{3m}{3} = \frac{9}{3}$$

$$m = 3$$

$$L = 2(3)$$

$$L = 6$$

$$L =$$

$$m = 3$$

$$L = 6$$

- 2) Sophia and her brother combined to read a total of 40 books over the summer. Sophia read four times as many books as her brother. How many books did each person read?

S - Sophia
b - brother

$$S + b = 40$$

$$S = 4b$$

$$S = 4(8)$$

$$S = 32$$

$$(4b) + b = 40$$

$$(4b) + (b) = 40$$

$$\frac{5b}{5} = \frac{40}{5}$$

$$b = 8$$

$$s = 32$$

books

$$b = 8$$

books

- 3) Angle X and Angle Y are complementary angles. Angle X is eight times larger than Angle Y. What are the measures of Angle X and Angle Y?

X - Angle x
y - Angle y

$$x + y = 90$$

$$x = 8y$$

$$x = 8(10)$$

$$x = 80$$

$$(8y) + y = 90$$

$$(8y) + (y) = 90$$

$$\frac{9y}{9} = \frac{90}{9}$$

$$y = 10$$

$$x = 80^\circ$$

$$y = 10^\circ$$

4) The sum of Emma's age and her sister's age is 41 years. Emma is 11 years older than her sister. What is Emma's age, and what is her sister's age?

e - Emma
s - sister

$$e + s = 41$$

$$e = 11 + s$$

$$e = 11 + 15$$

$$e = 26$$

$$(11 + s) + s = 41$$

$$11 + s + s = 41$$

$$2s + 11 = 41$$

$$\begin{array}{r} -11 \quad -11 \\ \hline \end{array}$$

$$\frac{2s}{2} = \frac{30}{2}$$

$$s = 15$$

$$\underline{e = 26}$$

Years old

$$\underline{s = 15}$$

years old

5) Noah has a total of 47 video games. He only buys action games and sports games. He has 21 more action games than sports games. How many action games and how many sports games does he have?

a - action
s - sports

$$a + s = 47$$

$$a = 21 + s$$

$$a = 21 + 13$$

$$a = 34$$

$$(21 + s) + s = 47$$

$$21 + s + s = 47$$

$$21 + 2s = 47$$

$$\begin{array}{r} -21 \quad -21 \\ \hline \end{array}$$

$$\frac{2s}{2} = \frac{26}{2}$$

$$s = 13$$

$$\underline{a = 34}$$

$$\underline{s = 13}$$

6) The perimeter of a rectangle is 128 cm. The length of the rectangle is three times longer than the width. What is the length and width of the rectangle?

$$2L + 2W = 128$$

$$2(3W) + 2W = 128$$

$$(6W) + 2W = 128$$

$$\frac{8W}{8} = \frac{128}{8}$$

$$W = 16$$

$$L = 3(16)$$

$$L = 48$$

$$\underline{L = 48 \text{ cm}}$$

$$\underline{W = 16 \text{ cm}}$$

L = length
W = width

