

Math 9 – Unit 6 – Word Problems

Solve the following word problems:

INPUT YOUR ANSWERS AT: goo.gl/forms/x07iWL5F31

1) When 9 is subtracted from a number and then divided by 2, the answer is 4. What is the number?

Let $x =$ the number

$$(x-9) \div 2 = 4$$

$$\begin{array}{r} \cancel{\times 2} \quad \times 2 \\ \hline \end{array}$$

The number is 17

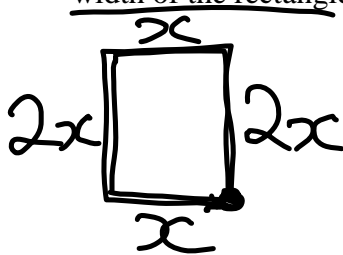
$$x - 9 = 8$$

$$\begin{array}{r} \cancel{-9} \quad +9 \\ \hline \end{array}$$

$$x = 17$$

$$(17-9) \div 2 = 4$$

2) The length of a rectangle is twice that of the width. The perimeter of the rectangle is 24 cm. What is the width of the rectangle?



Let $x =$ width
 $2x =$ length

$$P = 2x + x + 2x + x$$

$$24 = 2x + x + 2x + x$$

The width of the rectangle is 4 cm

$$24 = 6x$$

$$\begin{array}{r} \cancel{24} \quad \cancel{6} \\ \hline \end{array}$$

$$x = 4$$

3) Marcus, Sally and Sammy decided to share 20 sweets. Marcus took 8 sweets and Sally took three times as many as Sammy. How many sweets did Sammy receive?

Let $x =$ Sammy
 Marcus = 8
 Sally = $3x$

$$20 = \text{Marcus} + \text{Sally} + \text{sammy}$$

$$20 = 8 + 3x + x$$

$$20 = \cancel{8} + 4x$$

$$\begin{array}{r} \cancel{-8} \quad \cancel{8} \\ \hline \end{array}$$

$$12 = 4x \div 4 \quad x = 3$$

Sammy received 3 sweets.

4) If the sum of three consecutive numbers is 72, what is the largest number?

Let $x =$ largest/3rd
 2nd = $x - 1$
 1st = $x - 2$

$$1^{\text{st}} + 2^{\text{nd}} + 3^{\text{rd}} = 72$$

$$x - 2 + x - 1 + x = 72$$

$$3x - 3 = 72$$

$$\begin{array}{r} \cancel{-3} \quad +3 \\ \hline \end{array}$$

$$3x = 75$$

$$x = 25$$

The largest number is 25

5) Andy is 2 times younger than his sister and his father is 25 years older than him. If the total of their ages is 53 years, what is Andy's age and his father's age?

Let $x = \text{Andy's age}$
 $2x = \text{sister}$
 $x + 25 = \text{father}$

$$A + S + F = 53$$

$$x + 2x + x + 25 = 53$$

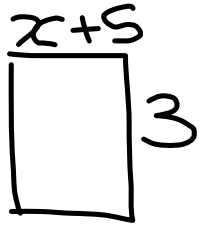
$$4x + 25 = 53$$

$$\begin{array}{r} 4x + 25 = 53 \\ -25 \quad -25 \\ \hline 4x = 28 \end{array}$$

Andy is 7 years old and his father is 32 years old.

$$\frac{4x}{4} = \frac{28}{4} \quad x = 7$$

6) The length and breadth of a rectangle are $(x + 5)$ cm and 3 cm respectively. Find the value of x if the area of the rectangle is 42 cm^2 .



$$A = l \times w$$

$$A = (x + 5) \times 3$$

$$42 = (x + 5) \times 3 \div 3$$

The value of x is 9 cm

$$\begin{array}{r} 42 = (x + 5) \times 3 \div 3 \\ \div 3 \quad \div 3 \\ \hline 14 = x + 5 \end{array} \quad x = 9$$

7) Carol is y years old and her daughter is 25 years younger. Find Carol's present age if the sum of their ages in 6 years time is 75 years

Let $y = \text{Carol's age}$
 $y - 25 = \text{daughter's age}$

$$y + 6 + y - 25 + 6 = 75$$

$$2y - 13 = 75$$

$$\begin{array}{r} 2y - 13 = 75 \\ +13 \quad +13 \\ \hline 2y = 88 \end{array}$$

Carol's age is 44

8) Diana buys 20 apples at x cents each and 40 oranges at $x + 10$ cents. She packs them into bags containing 5 apples and 10 oranges and sells the bags for $20x$ cents each.

Find out the amount that Diana paid for each apple if she obtained a total of ~~RM 24~~ profit 2400¢ from selling all the fruits.

{ Apples = $20x$
 { Oranges = $40(x + 10)$
 cost

Sold for: $4 \times 20x = 80x$

$$\text{Profit} = \text{Amount made} - \text{cost}$$

$$2400 = 80x - (20x + 40x + 400)$$

$$2400 = 80x - 60x - 400$$

$$2400 = 20x - 400$$

$$\begin{array}{r} 2400 = 20x - 400 \\ +400 \quad +400 \\ \hline 2800 = 20x \end{array}$$

$$\frac{2800}{20} = \frac{20x}{20} \quad x = 140 \text{ cent}$$

The apple cost 140 cents each
\$1.40