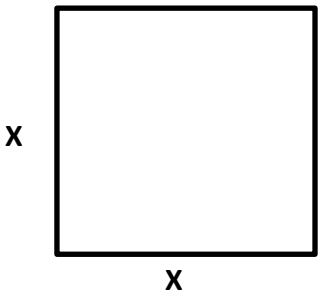
Weekly School – 8th week -Grade 9

Formulae

The perimeter of a square of side length **X** is **P** and the area is **A**.



Perimeter = X + X + X +X

P = 4X

Area = X x X

A = X^2

A relationship between two or more quantities expressed as an equation , is known as a "**formula**".

Some formulae that are frequently used in Science and Mathematics are given below.

Changing the subject of a formula

Ex: - (1) Make X the subject of the formula, P = 4X .

$\frac{P}{4} = \frac{4X}{4}$

$\frac{P}{4} = X$

X = $\frac{P}{4}$

(2)) Make F the subject of the formula, $E = V + F - 2$.

$E = V + F - 2$

$E + 2 = V + F$

$E + 2 - V = F$

$F = E + 2 - V$

(3)) Make a the subject of the formula, $v = u + at$.

$v = u + at$

$v - u = at$

$\frac{v-u}{t} = \frac{at}{t}$ (dividing both side by **t**)

$\frac{v-u}{t} = a$

$a = \frac{v-u}{t}$

Do the exercise 17.1

Substitution

There are 2 methods that can be used to find the value of an unknown variable .

01. Substitutes the given values in the formula as it is , and then find the value of the unknown.
02. First make the unknown of which the value is to be determined the subject of the formula, and then find its value by substituting the given values.

Ex :- find the value of **m** when **x = 4 , Y = 7** and **C = -1** in the **Y = mx + C .**

Method 01 -

$$Y = mx + C$$

$$7 = m\ X\ 4 + (-1)$$

7+1 = 4m

8 = 4m

$$\frac{8}{4} = \frac{4m}{4}$$ (dividing both side by 4)

2 = m

m = 2

Method 02 -

First make the m the subject $Y = mx + C$

$$Y - C = mx$$

$$\frac{Y-C}{x} = \frac{mx}{x}$$ (dividing both side by **x**)

$$\frac{Y - C}{x} = m$$

$$m = \frac{Y - C}{x}$$

then substitute values

$$m = \frac{7 - (-1)}{4}$$

$$m = \frac{8}{4}$$

$$m = 2$$

Do the exercise 17.2