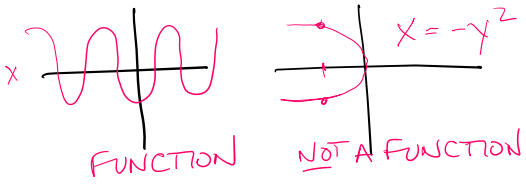
Lesson 3: Function Notation



We can use FUNCTION NOTATION as a way of representing or writing a function.

Function notation indicates the DEPENDENT (y) and INDEPENDENT (x) variables. Any function that can be written as an equation in two variables can also be written in function notation.

$y = 2x - 6$ ← EQUATION IN 2 VARIABLES

$f(x) = 2x - 6$ ← FUNCTION NOTATION

Example: $d(t) = 4t + 5$ where *d* is distance and *t* is time.

Since distance is dependent on time, we could rewrite this relation in function notation as:

$d(t) = 4t + 5$ (read as "d of t")

$d = 4t + 5$

Conversely, we can write an equation in function notation as an equation in two variables.

Example: $C(n) = 300 + 25n$ can be written as $C = 300 + 25n$.

Examples of the Use of Function Notation:

1) The equation $V = -0.08d + 50$ represents the volume (V litres) of gas remaining in the vehicle's tank after travelling d kilometers. The gas tank is not refilled until it is empty.

DEPENDENT: VOLUME
INDEPENDENT: DISTANCE

a) Write the equation in function notation.

$V(d) = -0.08d + 50$

b) Determine the value of $V(600)$. What does this represent?

← DISTANCE TRAVELLED (X-VALUE)

$V(600) = -0.08(600) + 50$

$V(600) = -48 + 50$

$V(600) = 2$

AFTER TRAVELLING 600 KM, 2 LITRES OF GAS REMAIN IN THE TANK.

c) Determine the value of d when $V(d) = 26$. What does this represent?

$V(d) = -0.08d + 50$

$26 = -0.08d + 50$

$-50 \quad\quad -50$

$-24 = -0.08d$

$\frac{-24}{-0.08} = \frac{-0.08d}{-0.08}$

$300 \text{ km} = d$

IF 26 LITRES OF GAS REMAIN IN THE TANK, THEN 300 KM HAVE BEEN TRAVELLED.

EQUATION WRITTEN IN 2 VARIABLES.

2) The equation $C = 25n + 1000$ represents the cost (C dollars) for a meal, where n is the number of people attending.

a) Write the equation in function notation.

$C(n) = 25n + 1000$

100 people attending.

b) Determine the value of $C(100)$.

COST

$C(100) = 25(100) + 1000$

$C(100) = 2500 + 1000$

$C(100) = 3500$

IT WOULD COST $3500 FOR 100 PEOPLE TO ATTEND.

c) Determine the value of n when $C(n) = 5000$.

$y = 5000$

FIND # OF PEOPLE IF COST IS $5000

$C(n) = 25n + 1000$

$5000 = 25n + 1000$

$-1000 \quad -1000$

$\frac{4000}{25} = \frac{25n}{25}$

$160 = n$

160 PEOPLE ATTENDED AT A COST OF $5000.

Worksheet