Class Discussion

Unit 1 Topic 2 Function 201

Definition of Function:

A function is a relationship (with different representations) between the values of two sets (A➔B)

The operational rule of a valid function is: every element in A finds exactly one matched element (mapping) in B.

In this definition, set A has a common name: domain (x), set B has a common name: range (y).

Ex1. A function $f(x)=\frac{x^2+1}{x-2}$

(a) Evaluate $f(3)$, $f(2)$, $f(1)$

(b) Domain of the $f(x)$

Ex 2 Determine for $2x^3+y^2=3$, is y a function of x?

Ex 3 Given $f(x)=\begin{cases}2x+1, x<1\\1-3x, x\geq 1\end{cases}$, Evaluate $f(3), f(1)$ and $f(-2)$

Implied Domain: When a function is defined by an algebraic expression and the domain was not specified, implied domain consists all real numbers for which the expression is defined in real number line.

Ex 4 Find the implied domain and the range of $f(x)=\frac{1}{x-3}$, use the interval notation to describe the domain and range.

Define Difference Quotient : (this is a concept that does not really connect to the topic here. Nevertheless, it is covered in the textbook)

Difference quotient of a function f is defined as $\frac{f(x+h)-f(x)}{h}$

Where $h\neq 0$