

Introduction to Functions

I. Function:

- A. Formal: A relationship between two sets, known as the Domain (D) and the Range (R), where every element in D is paired with exactly “one” element in R.
- B. Informal: For practical purposes, **functions are a special category of equations which satisfy the criteria that “every value of x is paired with exactly one value of y .”**

II. Examples –

A. $y = 2x$ is a function

B. $y = x^2 + 3$ is a function

C. $y^2 = x$ is NOT a function

as if $x = 1$, then $y = \pm 1$ (not a single value)

III. Notation:

A. $y = f(x)$ denotes that “ y is a function of x ”



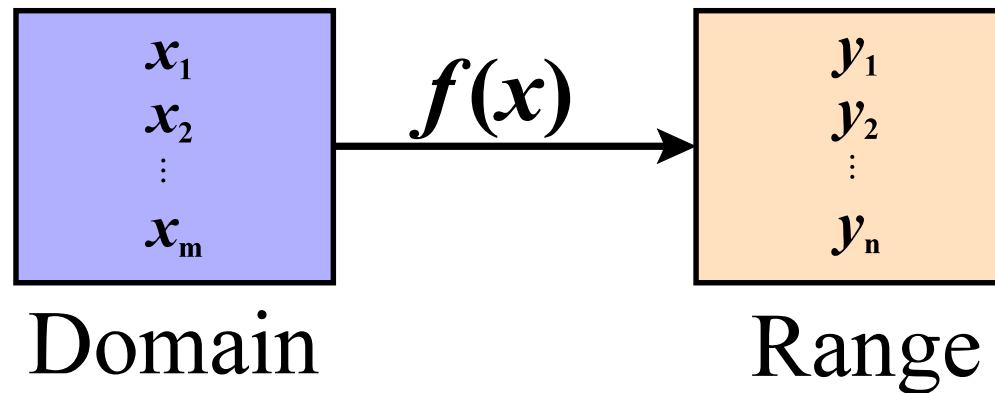
read as “ y equals f of x ”

B. Examples (pp.102-103):

Exercises #10abc, 16abc, 18abc, 20, 24, 28

IV. The General Idea:

Input value x into $f(x)$ and evaluate the result which becomes the output value y ...



HW: pp.102-103 / Exercises #9,13,17,19,21,23,27
Read section 2.2 (pp.106-111)

I. Graphing $y = f(x)$:

- A. Make a table of ordered pairs $(x, f(x))$
- B. Plot enough points to “recognize” the shape of the curve (which may be a line)
- C. Connect the points in a “reasonable” way, which includes what happens when $x \rightarrow \pm\infty$ (*i.e.*, what happens to the far right and the far left) when appropriate...
- D. p.112 / Exercises #4,6,8

HW: pp.111-112 / Exercises #1-9(odd)