

Functions

Definition 0.1. A *function* f is a rule that assigns to each element x in a set A (called the *domain*) exactly one element, called $f(x)$ in a set B (called the *range*).

Domain Convention 0.1. *Then the domain is not explicit we use the domain convention: the domain of the function is the set of all possible inputs that the rule returns a real number.*

While working in a group make sure you:

- Expect to make mistakes but be sure to reflect/learn from them!
- Are civil and are aware of your impact on others.
- Assume and engage with the strongest argument while assuming best intent.

1. Let f be a function defined algebraically by: $f(x) = \frac{1}{1-x^2}$

(a) Find $f(2)$ and $f(2.2)$.

(b) Find the output of the function f when $x = -3$.

(c) Find $f(\Delta)$ and $f(a+h)$.

(d) Given that f is a function, use the domain convention to find the domain of f ?

2. Let g be a function defined as: “ $g(x)$ equals the distance x is from 0”.

(a) Find $g(3)$

(b) Find the output of the function g when $x = -4$.

(c) What is the domain of g ?

(d) What other notation can you use to define g ?

Verify your answers for #1 by looking at Example 5 from §1.3.