Functions

A function maps elements in a set X to elements in a set Y.

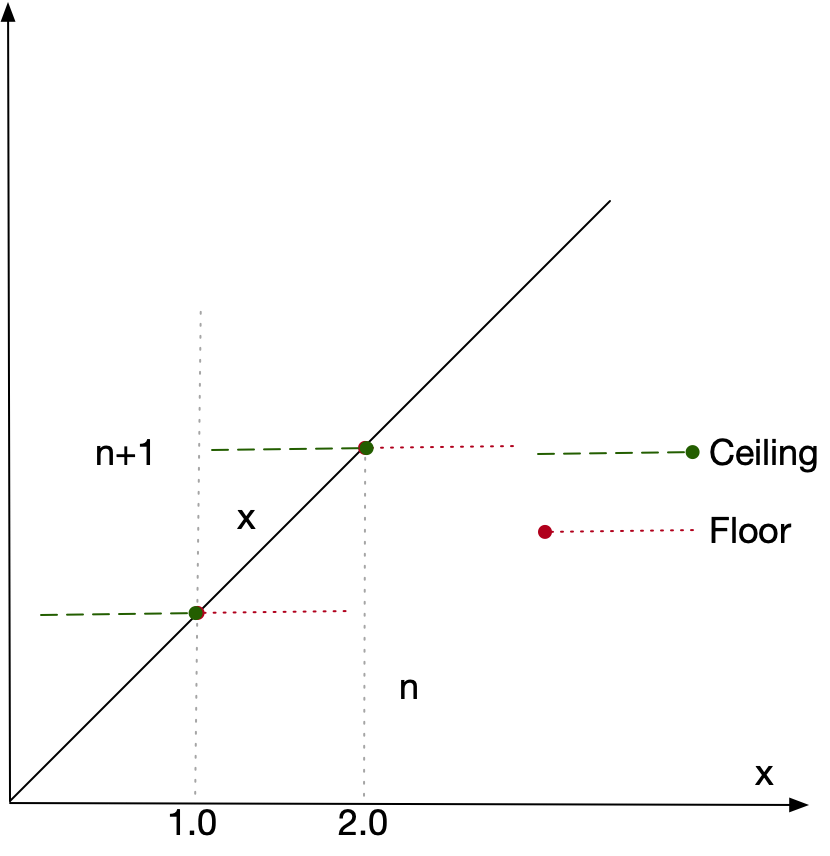
The set X is called the domain and the set Y is called the codomain. Evert element in X must be mapped to an element in Y although different values in X can map to the same value in Y. If then the unique element that x maps to is called the value of x under f or The set X is called the domain and the set Y is called the codomain. Any specific value of x must map to only one value in Y, however multiple values of X can map to the same value in Y. There may be values in the codomain which are not values of Y.

### Floor/Ceiling

The greatest integer less than or equal to x

The smallest integer greater than or equal to x

Figure 1Floor/Ceiling



Notice how

#### Basic Properties

##### Property 1

The ceiling and floor of x are only equal to x if x is an integer.

##### Property 2

##### Property 3

##### Property 4

##### Property 5

If n is an integer and x a real

#### Fractional Part

The floor gives the integer part of a real and subtracting the floor from the real gives the fractional part

We can use this notation to calculate possible values of

##### Property 5

Letting

Then

Since sometimes

And sometimes

+1

#### Basic Rules

##### Rule a)

