We will start off this week with what should be a review of functions and related concepts.

**Functions**

**Preliminaries:**
Most mathematical applications involve **real numbers**.

*examples:*

Some of these real numbers are **irrational** meaning that they have an infinite decimal expansion whose digits form no repeating pattern.

We can describe sets of real numbers using **intervals:**

**Definition of a Function**

*examples:*
There are four ways to represent a function:

The Vertical Line Test (VLT):

Why would not passing the VLT mean that a graph does not represent a function?

Other Properties of Functions:

I. Discontinuity

II. Maxima/Minima

III. Increasing/Decreasing
Examples

Find the domain of the following functions and evaluate them at 2 and −2.

1. \( f(x) = 2x - 5 \)

2. \( h(x) = \frac{2x-5}{x+1} \)

3. \( y = \sqrt{\frac{2x-5}{x+1}} \)

4. \( g(y) = \sqrt{(3x-2)(x+1)} \)