Lesson 2.1: Vocabulary

A **sequence** is a function whose domain is the set of all nonnegative integers and whose range is a subset of the real numbers.

A set of numbers is said to be **discrete data** if the data can only take on certain values.

A set of numbers is said to be **continuous data** if the data can take on any value in an interval of numbers.

A **subscript** is a quantity displayed below the normal line of text. In sequences, the subscript is used to identify the term in the sequence. For example, a_3, is the sequence value corresponding to $n = 3$.

Each number in a sequence is called a **term**.

A **difference equation** is a recursively defined sequence that describes behavior taking place over discrete time periods.

Note: Difference equations give the future value of a system using this form:

$$future\ value = present\ value + change$$

It can also be helpful to study the formula for change:

$$change = future\ value - present\ value$$

A **functional equation** is one that is a non-recursively defined equation that gives the value of a function.

Recursion occurs when a sequence is defined in terms of it's previous terms.

A **Dynamical System** is a difference equation, along with an initial value, that describes the change of a system over time.