Average Rate of Change & Secant Line

Average Rate of Change $= \dfrac{f(x_2) - f(x_1)}{x_2 - x_1} = \dfrac{f(x_1) - f(x_2)}{x_1 - x_2}$

Average Rate of Change is a single number indicating a rough amount computed for some measurablte entity that changes or varies with time.

A **Secant Line**, also simply called a secant, is a line passing through two points of a curve.

Therefore **slope of a secant line** is the same as the Average Rate of Change.

Equation for Secant Line, if **A** indicates Average Rate of Change while **f**(x) indicates horizontal axis value for secant line computes as follows:
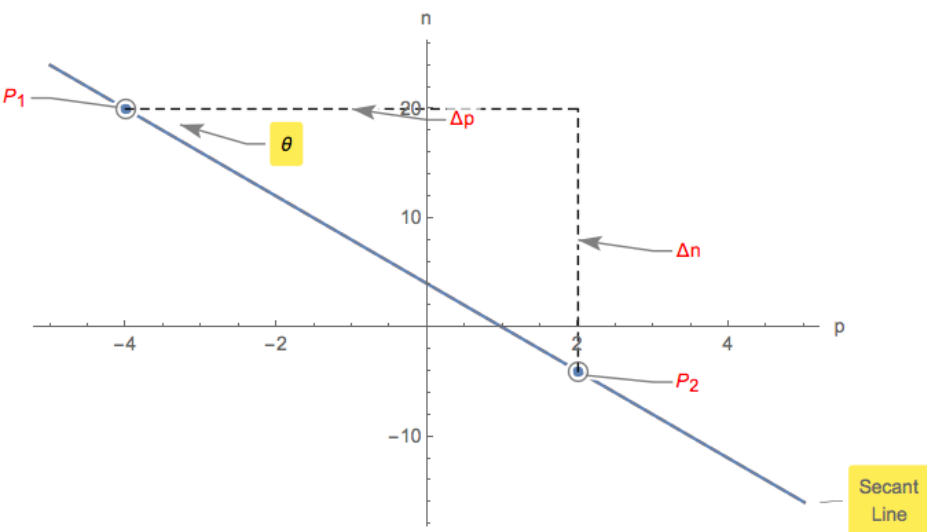
$A = \dfrac{f(x) - f(x_1)}{x - x_1} \Longrightarrow A(x - x_1) = f(x) - f(x_1) \Longrightarrow A(x - x_1) + f(x_1) = f(x)$

$$f(x) = Ax + (f(x_1) - Ax_1)$$

Example 1.

n = 4 − 4 p average between −4, 2

$\Delta n = n(2) - n(-4) = 4 - 4(2) - (4 - 4(-4)) = -24$

Secant Slope $= \text{Tan}(\theta) = \dfrac{n(2) - n(-4)}{2 - (-4)} = -4$

Average Rate of Change $= A = -4$

Secant Line: n = −4 p + 4

n could be temperature of a cup of tea and p time.
n could be speed of a car and p time.
n could be gasoline amount and p distance traveled.