<u>Calculus</u>

Part 1: Differential Calculus

Differential calculus is the branch of calculus that deals with the study of rates of change. It involves the study of derivatives and their applications. Derivatives are used to find the rate at which a function is changing at a given point. The following are some important concepts in differential calculus:

- Limits: Limits are used to find the behavior of a function as it approaches a particular value.
 Limits are used to define derivatives.
- Derivatives: Derivatives are used to find the rate at which a function is changing a given point.
 The derivative of a function f(x) is denoted by f'(x) or dy/dx. The derivative of a function can be found using the limit definition of the derivative.
- Rules of Differentiation: There are several rule of the eventiation that make it easier to find the derivative of the inclusion. There include the power rule, product rule, quotient rule, and chain all
- Applications of Derivatives: Derivatives have several applications in real-life situations. These include finding maximum and minimum values of a function, finding the slope of a curve at a given point, and finding the velocity and acceleration of an object.