**Differentiation and Integration Rules**

A derivative computes the instantaneous rate of change of a function at different values.

An indefinite integral computes the family of functions that are the antiderivative. A definite integral is used to compute the area under the curve

These are some of the most frequently encountered rules for differentiation and integration.

For the following, let u and v be functions of x, let n be an integer, and let a, c, and C be constants.

**Fundamental Rules**

**Trigonometric Functions**

**Exponential and Logarithmic Functions**

**Inverse Trigonometric Functions**

**Hyperbolic Trigonometric Functions**

**Inverse Hyperbolic Trigonometric Functions**