

Differentiation

Chain Rule

$$\frac{dy}{dx} = \frac{du}{dx} \times \frac{dy}{du}$$

Product Rule

$$y = uv$$

$$\frac{dy}{dx} = v \frac{du}{dx} + u \frac{dv}{dx}$$

Quotient Rule

$$y = \frac{u}{v}$$

$$\frac{dy}{dx} = \frac{v \frac{du}{dx} - u \frac{dv}{dx}}{v^2}$$

Differentiation

Function	Derivative
e^x	e^x
$\ln(x)$	$\frac{1}{x}$
$\sin(x)$	$\cos(x)$
$\cos(x)$	$-\sin(x)$