1 Derivative rules

1.1 Constant Rule

$$\frac{\mathrm{d}}{\mathrm{d}x}c = 0$$

1.2 Constant Multiple Rule

$$\frac{\mathrm{d}}{\mathrm{d}x}[cf(x)] = cf'(x)$$

1.3 Power Rule

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(x^n\right) = nx^{n-1}$$

1.4 Sum Rule

$$\frac{\mathrm{d}}{\mathrm{d}x}[f(x) + g(x)] = f'(x) + g'(x)$$

1.5 Difference Rule

$$\frac{\mathrm{d}}{\mathrm{d}x}[f(x) - g(x)] = f'(x) - g'(x)$$

1.6 Product Rule

$$\frac{\mathrm{d}}{\mathrm{d}x}[f(x)g(x)] = f(x)g'(x) + g(x)f'(x)$$

1.7 Quotient Rule

$$\frac{\mathrm{d}}{\mathrm{d}x}\left[\frac{f(x)}{g(x)}\right] = \frac{g(x)f'(x) - f(x)g'(x)}{g(x)^2}$$

1.8 Chain Rule

$$\frac{\mathrm{d}}{\mathrm{d}x}f(g(x)) = f'(g(x))g'(x)$$

2 Integration Rules