

Differentiation and Integration Rules

$$\frac{d}{dx}[C] = 0$$

$$\int 0 \, dx = C$$

$$\frac{d}{dx}[7]$$

$$\int 0 \, dx$$

Differentiation and Integration Rules

$$\frac{d}{dx}[kx] = k$$

$$\int k \, dx = kx + C$$

$$\frac{d}{dx}[3x]$$

$$\int 4 \, dx$$

Differentiation and Integration Rules

$$\frac{d}{dx}[f(x) \pm g(x)] = \frac{d}{dx}[f(x)] \pm \frac{d}{dx}[g(x)]$$

$$\int [f(x) \pm g(x)] = \int f(x) dx \pm \int g(x) dx$$

$$\frac{d}{dx}[2x^2 + 5x]$$

$$\int (2x + 5) dx$$

Differentiation and Integration Rules

$$\frac{d}{dx}[x^n] = n \cdot x^{n-1}$$

$$\int x^n dx = \frac{x^{n+1}}{(n+1)}, n \neq -1$$

$$\frac{d}{dx}[x^3]$$

$$\int x^3 dx$$

Differentiation and Integration Rules

$$\frac{d}{dx}[k \cdot f(x)] = k \cdot \frac{d}{dx}[f(x)]$$

$$\int k \cdot f(x) \, dx = k \cdot \int f(x) \, dx$$

$$\frac{d}{dx}[4x^2]$$

$$\int 3x^3 \, dx$$

Differentiation and Integration Rules

$$\frac{d}{dx}[\sin x] = \cos x$$

$$\int \cos x \, dx = \sin x + C$$

$$\frac{d}{dx}[\cos x] = -\sin x$$

$$\int \sin x \, dx = -\cos x + C$$

$$\frac{d}{dx}[\tan x] = \sec^2 x$$

$$\int \sec^2 x \, dx = \tan x + C$$

Differentiation and Integration Rules

$$\frac{d}{dx}[\sec x] = \sec x \tan x \qquad \int \sec x \tan x \, dx = \sec x + C$$

$$\frac{d}{dx}[\cot x] = -\csc x \qquad \int \csc x \, dx = -\cot x + C$$

$$\frac{d}{dx}[\csc x] = -\csc x \cot x \qquad \int \csc x \cot x \, dx = -\csc x + C$$