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Derivatives

Rules of Derivative

If F and g are differentiable functions at X and c, n are constants. Then

$$1 - \frac{d}{dx} (c) = 0$$

$$2 - \frac{d}{dx} (f(x) \pm g(x)) = \frac{d}{dx} f(x) \pm \frac{d}{dx} g(x)$$

$$3 - \frac{d}{dx} (c f(x)) = c \frac{d}{dx} f(x)$$

$$4 - \frac{d}{dx} (f(x) \cdot g(x)) = f(x) \frac{d}{dx} g(x) + g(x) \frac{d}{dx} f(x)$$

$$5 - \frac{d}{dx} \left(\frac{f(x)}{g(x)} \right) = \frac{g(x) \frac{d}{dx} f(x) - f(x) \frac{d}{dx} g(x)}{(g(x))^2}$$

$$6 - \frac{d}{dx} (x^n) = n x^{n-1}$$

$$\sin x = \cos x \cdot \text{مشتقة الزاوية}$$

$$\cos x = -\sin x \cdot \text{مشتقة الزاوية}$$

$$\tan x = \sec^2 x \cdot \text{مشتقة الزاوية}$$

$$\cot x = -\csc x \cdot \text{مشتقة الزاوية}$$

$$\sec x = \sec x \cdot \tan x \cdot \text{مشتقة الزاوية}$$

$$\csc x = -\csc x \cdot \cot x \cdot \text{مشتقة الزاوية}$$