



CALCULUS IIO

(3.3) Derivatives of Trigonometric Functions

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Derivatives of Trigonometric Functions

$$y = \sin x \quad y' = \frac{d}{dx}(\sin x) = \cos x$$

$$y = \cos x \quad y' = \frac{d}{dx}(\cos x) = - \sin x$$

$$y = \tan x \quad y' = \frac{d}{dx}(\tan x) = \sec^2 x$$

$$y = \csc x \quad y' = \frac{d}{dx}(\csc x) = - \csc x \cot x$$

$$y = \sec x \quad y' = \frac{d}{dx}(\sec x) = \sec x \tan x$$

$$y = \cot x \quad y' = \frac{d}{dx}(\cot x) = - \csc^2 x$$

Example 1

$$y = x^2 \sin x$$

$$y' = 2x \sin x + x^2 \cos x$$

Example 2

$$f(x) = \frac{\sec x}{1 + \tan x}$$

Example 4

Find the 27th derivative of $\cos x$.

solution

Exercise 21

Find an equation of the tangent line to the curve

$$y = \sin x + \cos x \text{ at } (0,1)$$

solution



1- 7 (odd) 39, 51