

Section 2.4

Derivatives of Trigonometric Functions

TWO SPECIAL TRIGONOMETRIC LIMITS

$$1. \lim_{\theta \rightarrow 0} \frac{\sin \theta}{\theta} = 1$$

$$2. \lim_{\theta \rightarrow 0} \frac{\cos \theta - 1}{\theta} = 0$$

DERIVATIVES OF SINE AND COSINE

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

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

DERIVATIVES OF TANGENT AND COTANGENT

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

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

DERIVATIVES OF SECANT AND COSECANT

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

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