Derivative of Sine and Cosine

Goal: • Can build the derivative of sine and cosine using the definition of the derivative • Can use derivative rules with basic trig functions
Terminology: • None

Discussion: Determine the derivative of $\sin x$

Likewise we can build the derivative of $\cos x$

Now we can add trig functions to our derivative rules.

Example: Find $\frac{dy}{dx}$ if:

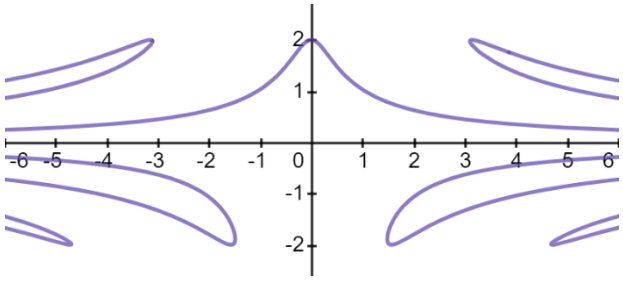
$$y = e^{\sin x} \cdot \cos^3 x$$

Practice: Find $\frac{dy}{dx}$ if:

$$y = \cos(\sin 3x) - \frac{1}{\sin x}$$

Practice: Find $\frac{dy}{dx}$ if

$$2\cos(xy) = y$$



Practice: Find

$$\int \cos(\sin x)\cos x\, dx$$

And evaluate:

$$\int_{\pi/2}^{\pi} \cos(\sin x)\cos x\, dx$$

Practice Problems: 7.2 # 1-5 (do what you need), 6, 8, 10
11.2 # 2f, 3f
11.3 # 3glnq, 4de