

5.4 The Derivative of $y=\sin x$ and $y=\cos x$

Summary:

$$y = \sin x$$
$$\frac{dy}{dx} = \cos x$$

$$y = \cos x$$
$$\frac{dy}{dx} = -\sin x$$

$$y = \sin u$$
$$\frac{dy}{dx} = \cos u \cdot \frac{du}{dx}$$

$$y = \cos u$$
$$\frac{dy}{dx} = -\sin u \cdot \frac{du}{dx}$$

Ex.1: Differentiate each of the following:

a. $y = \sin(5x)$

b. $y = \sin^4(3x)$

c. $y = \frac{\sin x - \cos x}{\sin x + \cos x}$

Ex. 2: Determine the **equation of the tangent** to $f(x) = -2\sin x$
at the point where $x = \frac{\pi}{6}$

