3.5 Derivatives of Trigonometric Functions Day 2

$y = \sin x$	$y' = \cos x$
$y = \cos x$	$y' = -\sin x$
$y = \tan x$	$y' = \sec^2 x$
$y = \sec x$	$y' = \sec x \tan x$
$y = \csc x$	$y' = -\csc x \cot x$
$y = \cot x$	$y' = -\csc^2 x$

Find the derivative of each.

Ex 1) $y = \sec x$

Ex 2) $y = \csc x$

Ex 3) Which of the following is an equation of the normal line to $y = \sin x + \cos x$ at $x = \pi$?

A. $y = -x + \pi - 1$
B. $y = x - \pi - 1$
C. $y = x - \pi + 1$
D. $y = x + \pi + 1$
E. $y = x + \pi - 1$

Ex 4) Find y'' if $y = x \sin x$

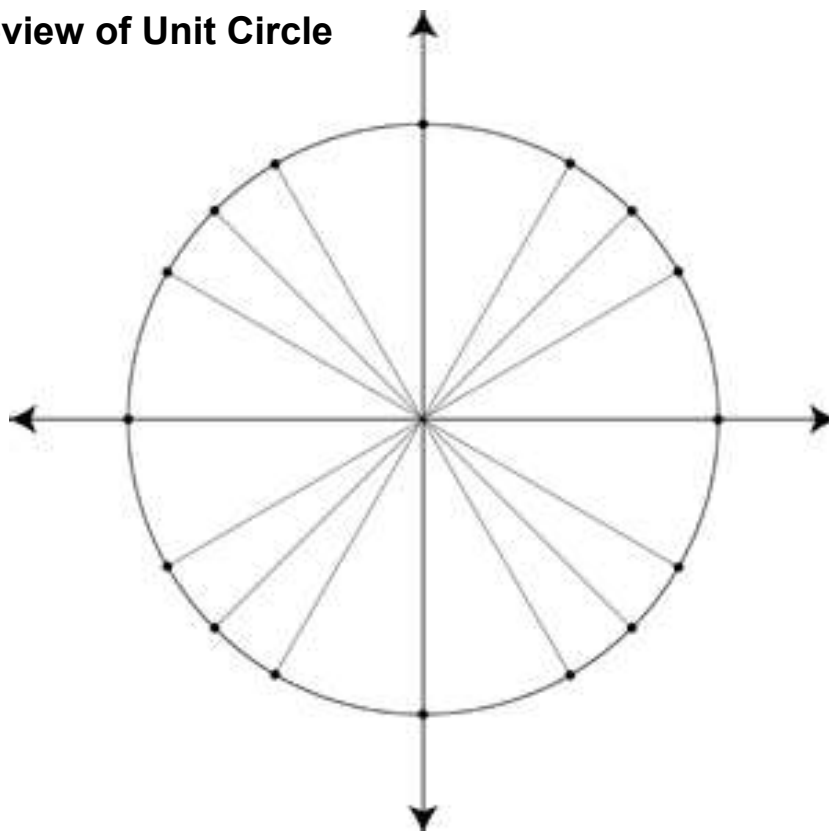A. $-x \sin x$
B. $x \cos x + \sin x$
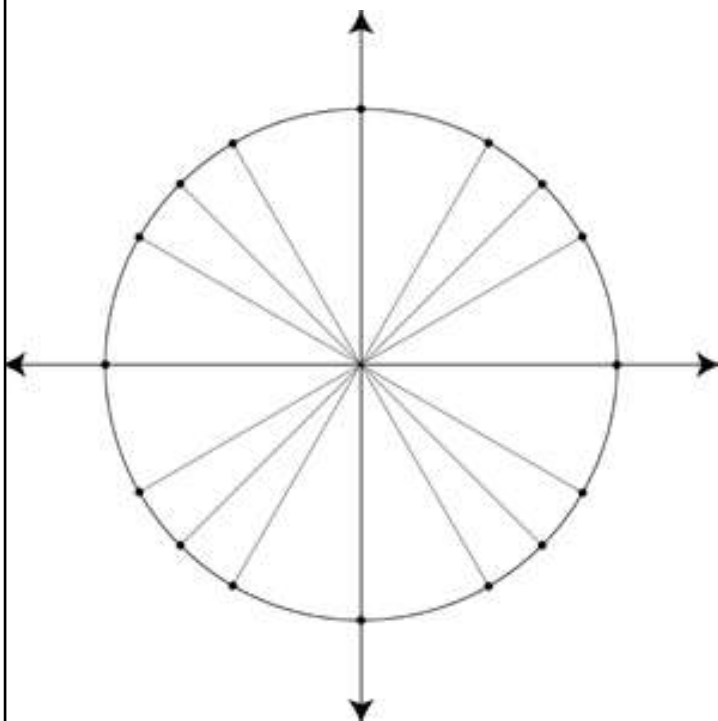C. $-x \sin x + 2 \cos x$
D. $x \sin x$
E. $-\sin x + \cos x$

Ex 5) A body is moving in simple harmonic motion with position s = 3 + sin t. At which of the following times is the velocity zero?

A. t = 0
B. t = π/4
C. t = π/2
D. t = π
E. none of these

Ex 6) Review of Unit Circle

Pythagorean Identities

Ex 9)

$$\csc \frac{11\pi}{6}$$

$$\cot \frac{7\pi}{4}$$

$$\tan \frac{5\pi}{4}$$

$$\sec \frac{7\pi}{6}$$