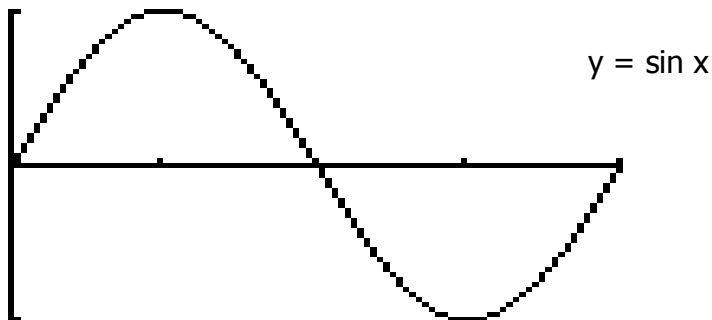


### SECTION 3.3: DERIVATIVES OF TRIGONOMETRIC FUNCTIONS

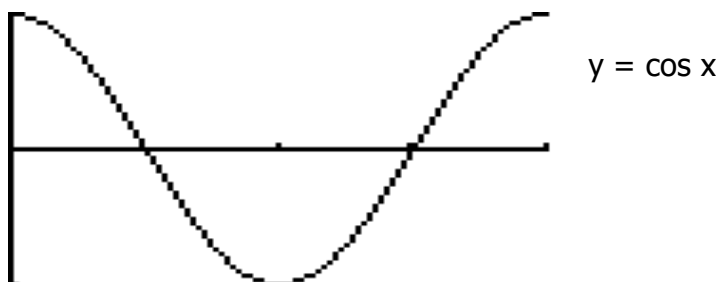
1. Sketch the derivative of  $y = \sin x$  on  $[0, 2\pi]$ .



Do you recognize the function you have drawn?

CONCLUSION:  $\frac{d}{dx}[\sin x] = \underline{\hspace{2cm}}$ .

2. Sketch the derivative of  $y = \cos x$  on  $[0, 2\pi]$ .



Do you recognize the function you have drawn?

CONCLUSION:  $\frac{d}{dx}[\cos x] = \underline{\hspace{2cm}}$ .

3. The derivatives of the remaining trigonometric functions can be derived using the fundamental identities and the quotient rule.

A.  $\frac{d}{dx}[\tan x] = \sec^2 x$  This rule is derived in the text, see page 193.

B. Derive  $\frac{d}{dx}[\cot x] =$

4. Examples using the sum, difference, product & quotient rules:

A.  $y = 7 \sin x - 5 \cos x$

B.  $y = \tan x + \sin x$

C.  $f(x) = e^x \sin x$

D.  $G(x) = \frac{\tan x}{x}$