Author 1 _____

Author 2 _____

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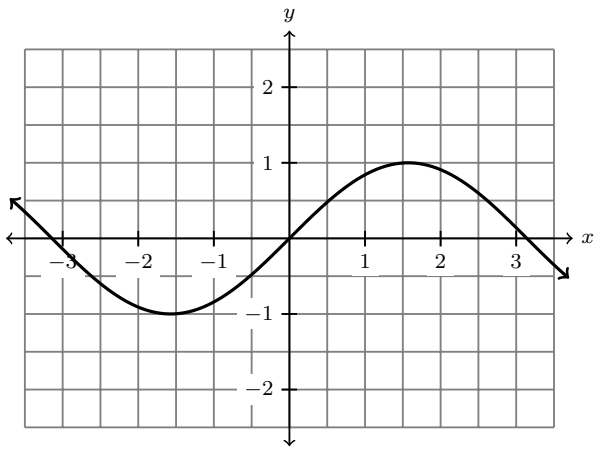
12 – Trigonometric Functions

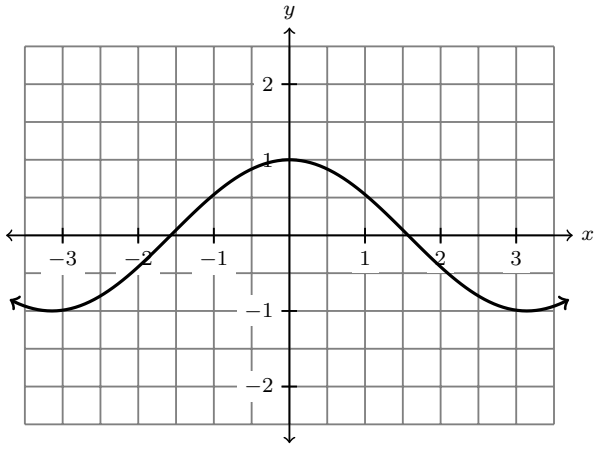
1. The graph of $f(x) = \sin(x)$ is below.



(a) What is the *geometric* meaning of $f'(0)$?

(b) Use the graph of $f(x)$ to find $f'(0)$.

2. The graph of $f(x) = \cos(x)$ is below.



(a) What is the *geometric* meaning of $f'(0)$?

(b) Use the graph of $f(x)$ to find $f'(0)$.

Theorem: Derivatives of the Trigonometric Functions

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

3. Evaluate the following derivatives.

(a) $f(x) = 5\sin(x) - \dfrac{7}{x}$

(b) $g(\theta) = 2e^{\theta}\sec(\theta)$

(c) $h(t) = \dfrac{\cot(t) + 1}{3t^4 + \cos(t)} - 7$