

Activity Score : 4/4

Derivatives of Sine and Cosine

Using the Creating the Derivative mathlet, select the (default) function $f(x) = \sin(x)$ from the pull-down menu in the lower left corner of the screen. Do not check any of the boxes.

Move the slider or use the $>>$ button to display the graph of the sine function.

- For approximately what values of x is the slope of $f(x) = \sin(x)$ equal to 0?
- At approximately what values of x is the slope of $f(x) = \sin(x)$ largest?
- For each of the values you listed in (b), is the slope positive or negative?
- Use the information you have collected to sketch the graph of $f'(x)$, the derivative of the sine function.
- Check the box next to the red $f'(x)$ to check your work.

Answers

a. $-\frac{3\pi}{2}, -\frac{\pi}{2}, \frac{\pi}{2}, \frac{3\pi}{2}$

b. largest +m largest -m

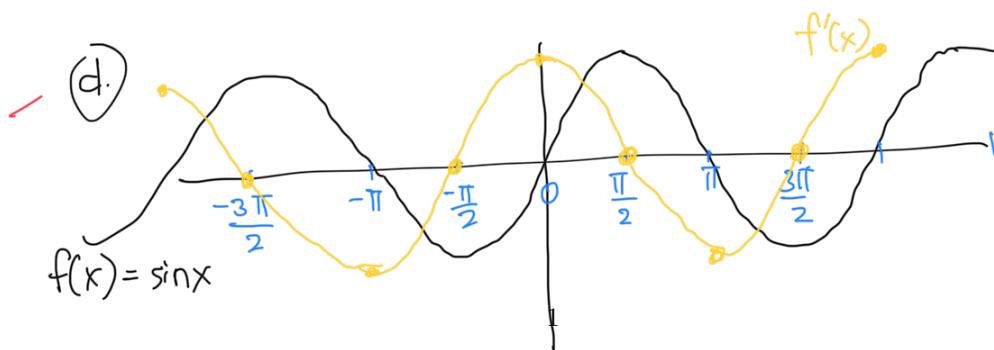
-2π $-\pi$

0 π

2π

c. at $x = -2\pi, 0, 2\pi$ the slope is positive

at $x = -\pi, \pi$ the slope is negative



MIT OpenCourseWare
<http://ocw.mit.edu>

18.01SC Single Variable Calculus
Fall 2010

For information about citing these materials or our Terms of Use, visit: <http://ocw.mit.edu/terms>.