

Name Kuy Date _____ Period _____

Worksheet 2.2—Derivatives on the Calculator

Please use your calculator.

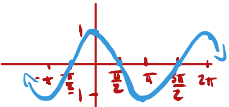
Short Answer

1. Evaluate the following derivatives on your calculator. Be sure to interpret your calculator's answer correctly.

- (a) $f'(\pi)$, if $f(x) = \tan x$
 $y_1 = \tan x$
 $y_2 = \frac{d}{dx}(y_1) |_{x=\pi}$
 Using TRACE:
 $f'(\pi) = 1$
- (b) $\frac{dy}{dx} \Big|_{x=3}$ if $y = \frac{|2x-6|}{4}$
 Think first!
 $y = \frac{2|x-3|}{4}$ vertex @ $x=3$
 $\frac{dy}{dx} \Big|_{x=3} = \text{DNE}$
 (calc will display 0, it's lying!)
- (c) $y'(2.3)$ if $y = \sqrt{x+1}$
 Think first! vertex @ $x=-1$, continue w/ calc.
 $y'(2.3) = 0.275$

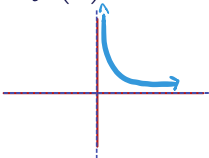
2. Use your calculator to sketch the graph of the derivative of the following functions. Use the calculator's graph to sketch your own graph below and then to identify the equation of the derivative function.

(a) $g(x) = \sin x$
 $y_1 = \sin x$
 $y_2 = \frac{d}{dx}(y_1) |_{x=x}$



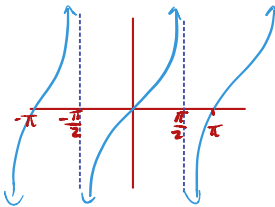
from calc, it looks like
 $g'(x) = \cos x$

(b) $f(x) = \ln x$



from calc, it looks like
 $g'(x) = \frac{1}{x}, x > 0$
 Use trace to help!

(c) $y = -\ln|\cos x|$



from calc, it looks like
 $y' = \tan x$

3. If $f(x) = \frac{|x|\cos x}{e^{-x}}$, use your calculator to find $f''(-2)$, the second-derivative of $f(x)$ at $x = -2$.

$y_1 = \frac{|x|\cos x}{e^{-x}}$ from home screen: $y_3(-2)$
 $y_2 = \frac{d}{dx}(y_1) |_{x=x}$ $f''(-2) = 0.358$
 $y_3 = \frac{d}{dx}(y_2) |_{x=x}$