

§2.2—Derivatives on the Calculator

Math Print “MATH” “8” from homescreen	Classic Print “MATH” “8” from homescreen
$f'(c) = \frac{d}{dx}(f(x))\Big _{x=c}$	$f'(c) = \text{nDeriv}(f(x), x, c)$
Graph: $Y_1 = \frac{d}{dx}(f(x))\Big _{x=x}$	Graph: $Y_1 = \text{nDeriv}(f(x), x, x)$

Example 1:

Evaluate each of the following on your calculator.

(a) $f'(4)$ if $f(x) = \ln x$

(b) $\frac{dy}{dx}\Big|_{x=-2}$ if $y = \frac{3x^2 + 1}{2x + 5}$

(c) $y'(0)$, if $y = x^{1/3}$

(d) Which of the preceding values are correct and which are not correct? Why would your calculator give incorrect answers?

Example 2:

Use your calculator to sketch the graph of the derivative of the following functions. Use the calculator's graph to identify the equation of the derivative function.

(a) $f(x) = -\cos x$

(b) $y = .25x^4$

(c) $y = \frac{x|x|}{2}$

Sometimes when we have a particularly “ugly” function and we are interested in finding information about its derivative, we can use the calculator's number crunching ability to an even greater degree.

Example 3:

If $f(x) = \frac{\sin x \sqrt{x^2 + 1}}{e^x}$, find $f''(1)$, the second-derivative of $f(x)$ at $x = 1$.