

Using the Calculator to Graph the Derivative

You can use your calculator to graph the derivative for you using the procedures outlined below. This is not a required skill for success in this course, just something else your calculator can do. If you have a TI-84, this process will be much quicker.

We will be using the nDeriv(function, except we will be using it to define a function under Y_1 . Remember the syntax is:

TI-83+ or TI-84 with Older Operating System	TI-84 Family with Newer Operating System
<p>The nDeriv(function works as follows:</p> $\text{nDeriv}(\text{function}, x, \text{value})$	<p>The nDeriv(function works as follows:</p> $\left. \frac{d}{dx}(\text{function}) \right _{x=\text{value}}$

For our example, let's use $\cos x$. The difference will be that our function will be entered as a function of x , and differentiated with respect to the same variable, and evaluated at the value of x instead of the actual number.

$f(x) = 14x e^{\tan(x^2)}$ Q Find $f'(2)$
 So we want to enter the following:
 go to $y_1 = 14x e^{\tan(x^2)}$ → 2nd quit → math → 8 → $\left. \frac{d}{dx} [Y_1] \right|_{x=2}$ ≈ 879.035

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<p>The nDeriv(function works as follows:</p> $Y_1 = \text{nDeriv}(\cos x, x, x)$	<p>The nDeriv(function works as follows:</p> $Y_1 = \left. \frac{d}{dx}(\cos x) \right _{x=x}$

Example 5 Graph the derivative of $f(x) = \ln x$. What function does this look like? Graph your guess on the same screen.

Example 6 Graph the derivative of $f(x) = e^x$. What does this function look like? Graph your guess on the same screen.