

Chapter Two Handout #1  
USING YOUR TI TO FIND A NUMERIC DERIVATIVE  
The easiest way to use nDeriv or nDer

Step 1: Put your function into  $y_1$  [or any place your choose in your graphing menu]

Step 2:

TI – 83 and 84            Go to the MATH Menu and choose 8 [nDeriv]

Step 3:

TI-83 and 84            nDeriv ( $y_1, x, x_n$ ) where  $x_n$  is the x-value of your desired point

CAUTION!!!! YOUR TI SOMETIMES LIES!!!! WHICH IS WHY YOU  
NEED TO BE ABLE TO FIND NUMERIC DERIVATIVES ANALYTICALLY

How to use your TI to find the equation of a tangent line

Step 1: put your function into  $y_1$  [or any place your choose in your graphing menu]

Step 2: Graph the function using an appropriate “window”

Step 3: go to the DRAW Menu and choose and choose 5 [Tangent], then enter the x-value of your desired point

Practice Problems

Find the slope of the graph of the function at the indicated point using Calculus. Use the derivative feature of a graphing utility to confirm your results. Then write the equation of the tangent line at that point. Decide whether or not your TI was correct.

Function

Point

$$f(x) = \frac{3}{x^2}$$

(1, 3)

$$f'(x) = -6x^{-3}$$
$$f'(1) = -6$$
$$y - 3 = -6(x - 1)$$

nDeriv says that  $f'(1) \approx -6.000012$

DRAW says

$$y = -6.000012x + 9.000012$$

TI was incorrect

$$f(t) = 3 - \frac{3}{5t}$$

$$\left(\frac{3}{5}, 2\right)$$

$$f(x) = -\frac{1}{2} + \frac{7}{5}x^3$$

$$\left(0, -\frac{1}{2}\right)$$

$$y = 3x^3 - 6$$

$$(2, 18)$$

$$y = 3x^4 + \sqrt{x} \quad (1, 4)$$

$$g(u) = \frac{1}{\sqrt{u}} + 2 \quad (1, 3)$$

$$f(\theta) = 4 \sin \theta - \theta \quad (0, 0)$$

$$g(t) = 2 + 3\cos t$$

$$(\pi, -1)$$

$$v(t) = -16t^2 + 10t + 25$$

$$(1, 19)$$

$$h(x) = 3x + 7$$

$$(2, 13)$$