MAT 136 (Calculus I), Prof. Jim Swift
Worksheet 6 = Quiz 2

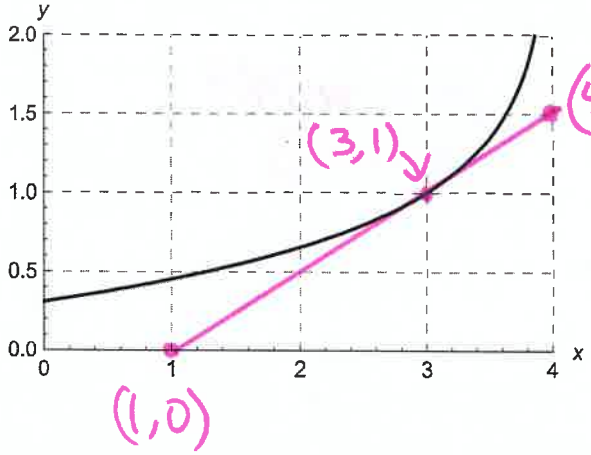
Name: key

Any resources (calculators, notes, classmates, laptop) are allowed. A calculator is not needed.

1. (a) The graph $y = f(x)$ is shown. Using an ID card or credit card, draw an accurate tangent line to the graph at $x = 3$.

(b) Use the drawing from part (a) to estimate the slope of the tangent line at $x = 3$.

(c) Find an equation to the tangent line you drew in part (a). Use the $y = m(x - x_0) + y_0$ form. If you did not find an estimate for the slope in part (b), just use "m" in your equation.



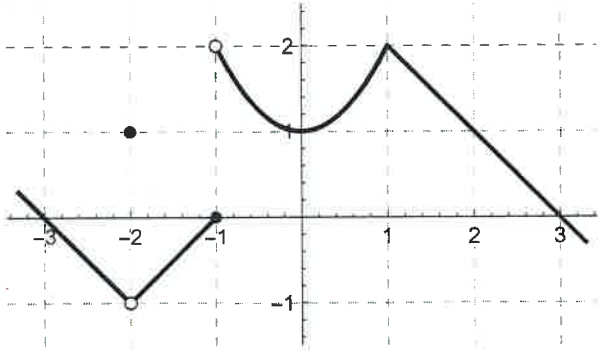
$m = \frac{1.5-0}{4-1} = \frac{1.5}{3}$

(b) $m = \frac{1}{2}$

(c) $y = \frac{1}{2}(x-3)+1$

Since $m = \frac{1}{2}$, $x_0 = 3$, $y_0 = 1$.

2. The graph of a function f is shown below. Compute the following, based on the graph. (If the limit does not exist, write 'DNE'. If the function is not defined, write 'undefined'.)



$\lim_{x \to -2} f(x) =$ -1

$f(-2) =$ 1

$\lim_{x \to -1} f(x) =$ DNE

$f(-1) =$ 0

$\lim_{x \to 1} f(x) =$ 2

$f(1) =$ 2