

Math 105 Quiz 3

§2.1-§2.3,

Name:

Show all work for credit. **As discussed in class, please re-write any negative or fractional exponents appropriately.**

1. Determine the following limits using the graph of  $g(x)$ .

(a)  $\lim_{x \rightarrow -2} g(x) =$

(d)  $\lim_{x \rightarrow -4} g(x) =$

(b)  $\lim_{x \rightarrow 1^+} g(x) =$

(e)  $\lim_{x \rightarrow 1} g(x) =$

(c)  $\lim_{x \rightarrow 3^-} g(x) =$

2. Find the derivative of  $f(x) = \frac{2}{x+3}$  using the limit definition of the derivative.

3. Use the sum/difference, constant multiple, and power rules to evaluate the following.

(a)  $f(x) = 2\sqrt[5]{x^2} + \frac{2}{5x^2} - \frac{x}{4} + x^{3/5}$

(b) Find the equation of the tangent line at  $x = 4$  for  $f(x) = 3x^2 + 4x - 1$ .