KF

Math 101 (163)

Quiz 1 (Chapter 2)

Name: ID #: Section:

1. Consider the point $P(-1,1)$ on the graph of $f(x) = x^2$.
   a. Find the slope m_{PQ} of the secant line PQ for any point Q on the graph.
   b. Use m_{PQ} to find the slope of the tangent line at P.
   c. Use (b) to find the value of $f'(-1)$.

2. Evaluate the limit, if it exists. If the limit does not exist, explain why.
$$\lim_{x \to 1} \frac{|x| + 1}{x - 1}.$$

3. Let $f(x) = \sqrt{x}$. Find the largest δ such that $|x - 4| < \delta \Longrightarrow |f(x) - 2| < 1/2$

4. For what values of the constant c the function f is continuous everywhere?
$$f(x) = \begin{cases} 2\cos x & \text{if} \quad x > 0 \\ c - x & \text{if} \quad x \leq 0 \end{cases}$$

5. Find the horizontal and vertical asymptotes of the graph of $f(x) = \frac{\sqrt{1-x^2}}{x+2}$.