

Quiz #1A, MTH 1410

Name: _____

1. (4 points) For what value of c is the function continuous at $x = 4$? Make sure you explain your answer and use correct notation.

$$f(x) = \begin{cases} \frac{x^2-5x+4}{x-4} & \text{if } x \neq 4 \\ 3c & \text{if } x = 4 \end{cases}$$

2. (2 points) For the given graphs, calculate the limit or state that it does not exist. If it does not exist, (briefly) explain why.

(i) $\lim_{x \rightarrow 1^+} [f(x) + g(x)] =$

(ii) $\lim_{x \rightarrow 5^-} [f(x) \cdot g(x)] =$

3. (4 points) Calculate the limit, if it exists. If it does not exist, explain why. Hint: Combine fractions, and be sure to use correct notation.

$$\lim_{x \rightarrow 0} \frac{1}{x} \left(\frac{5}{7} - \frac{5}{x+7} \right)$$