

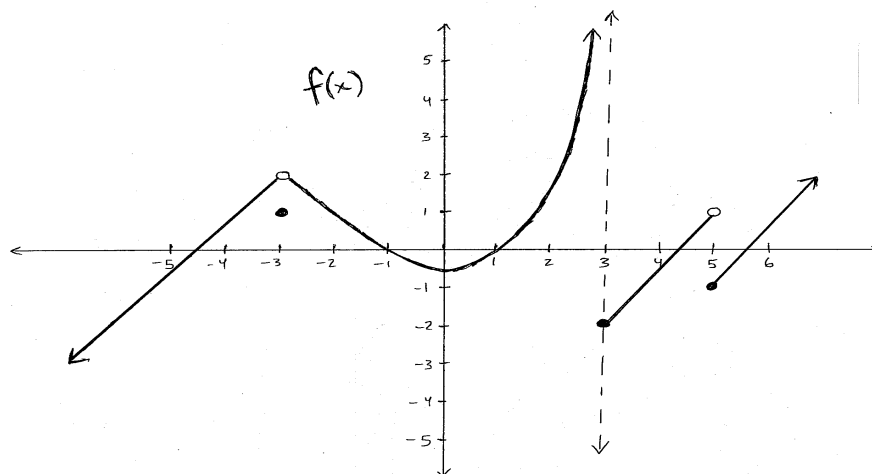
Quiz #1A, MTH 1410, Spring 2013

Name: _____

1. (3 points) For what value of c is the function continuous at $x = 4$? **Explain your reasoning.**
To receive full credit, you must use correct notation and the definition of continuity.

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

2. (3 points) For the given graph, calculate the limit or state that it does not exist. If it does not exist, (briefly) explain why.



(i) $\lim_{x \rightarrow (-3)} f(x) =$

(ii) $f(-3) =$

(iii) $\lim_{x \rightarrow 3^-} f(x) =$

(iv) $\lim_{x \rightarrow 5^+} f(x) =$

3. (4 points) Calculate the limit, if it exists. If it does not exist, explain why. Hint: Rationalize (that is, multiply by the conjugate) and simplify. Make sure you use correct notation!

$$\lim_{x \rightarrow 6} \frac{\sqrt{x-5} - 1}{x-6}$$