QUIZ III

First Name: Last Name:

1. (5 points)

State the Intermediate Value Theorem.

2. (5 points)

Sketch the graph of a function f that satisfies **all** the following conditions:

- $f(x) \to 5$ as $x \to -\infty$,

- $\lim\limits_{x \to 1^+} f(x) = +\infty$,

- $f(1) = 0$,

- $f(2) = 1$,

- $\lim\limits_{x \to -3} f(x) = -4$,

- f is not continuous at $x = -3$,

- $\lim\limits_{x \to +\infty} f(x) = 0$,

- $f(x)$ is defined for every x.

Make sure that your graph is the graph of a function, i.e., that it passes the vertical line test.