

Name:

Sec. 2.5 - Continuity

Math 251

1. Explain why the function

$$f(x) = \begin{cases} x + 3 & \text{if } x \leq -1 \\ 2^x & \text{if } x > -1 \end{cases}$$

is discontinuous at  $x = -1$ .

2. For what values of the constant  $c$  is

$$f(x) = \begin{cases} cx^2 + 2x, & \text{if } x < 2 \\ x^3 - cx, & \text{if } x \geq 2 \end{cases}$$

continuous on  $(-\infty, \infty)$ .

3. Evaluate  $\lim_{x \rightarrow 1} \arcsin \left( \frac{1 - \sqrt{x}}{1 - x} \right)$ .