

Name _____

1. (5 points) What value of c would make the following function continuous at $x = 2$?

$$f(x) = \begin{cases} x^2 + 3 & \text{for } x < 2 \\ 5x + c & \text{for } x \geq 2 \end{cases}$$

2. (3 points) Evaluate the following limit. You must fully justify your answer - simply giving numerical evidence is not sufficient. Hint - use the *Squeezing Theorem*.

$$\lim_{x \rightarrow +\infty} \frac{\sin(2x^2 + 3)}{\sqrt{x}}$$

3. (2 points) Clearly state the text of the *Intermediate Value Theorem*.