

Name _____ No Calculators. Present neatly. Score _____.

1. Sketch the graph of an example of a function f that satisfies all of the given conditions. (2 points)

$$\lim_{x \rightarrow 0^-} f(x) = 2, \quad \lim_{x \rightarrow 0^+} f(x) = 0, \quad \lim_{x \rightarrow 4^-} f(x) = 3,$$

$$\lim_{x \rightarrow 4^+} f(x) = 0, \quad f(0) = 2, \quad f(4) = 1$$

2. Evaluate the limit or explain why it does not exist. (6 points)

a)

$$\lim_{x \rightarrow 2^-} \frac{x^2 - 2x}{x^2 - 4x + 4}$$

b)

$$\lim_{x \rightarrow 2\pi^-} x \csc x$$

3. Briefly describe the Intermediate Value Theorem and its purpose. (2 points)

Your work: (Use back side if necessary)

Name _____ No Calculators. Present neatly. Score _____.

1. Sketch the graph of an example of a function f that satisfies all of the given conditions. (2 points)

$$\lim_{x \rightarrow 3^+} f(x) = 4, \quad \lim_{x \rightarrow 3^-} f(x) = 2, \quad \lim_{x \rightarrow -2} f(x) = 2,$$

$$f(3) = 3, \quad f(-2) = 1$$

2. Evaluate the limit or explain why it does not exist. (6 points)

a)

$$\lim_{x \rightarrow 2^+} \frac{x^2 - 2x - 8}{x^2 - 5x + 6}$$

b)

$$\lim_{x \rightarrow \pi^-} \cot x$$

3. Briefly describe the Squeeze Theorem and its purpose. (2 points)

Your work: (Use back side if necessary)