1. A function is ___________ at a point on the curve if \( \lim_{x \to a} f(x) \neq f(a) \).

2. What is the criterion that states if a curve is continuous or discontinuous?

3. How many different kinds of discontinuity are there, and what are they called?

4. Name at least three different continuity rules, and provide any necessary arguments.

5. All trigonometric functions are continuous at all points. (True/False)

6. In what domain are the following functions continuous:
   a. \( f(x) = \frac{3x^2 + 2x + 1}{x - 1} \)
   b. \( f(x) = \sqrt{9 - x^2} \)
   c. \( f(x) = \sin \left( \frac{1}{x} \right) \)
   d. \( f(x) = \frac{x}{x^2 - 7x + 12} \)

7. Evaluate the following limits:
   a. \( \lim_{x \to \infty} \left( \frac{2x + 1}{x} \right)^3 \)
   b. \( \lim_{t \to 2} \frac{t^2 + 5}{1 + \sqrt{t^2 + 5}} \)
   c. \( \lim_{x \to \pi} \frac{\cos^2(x) + 3 \cos(x) + 2}{\cos(x) + 1} \)
8. Determine at what points the following function is discontinuous from the graph.

9. Find the continuous extension of the following functions:
   
a. \( f(x) = \frac{x^2 + 3x + 2}{x + 1} \)
   
b. \( f(x) = \frac{x^5 + 6x + 17}{x^2 - 9} \)