Limits and Continuity Review Assignment

Complete the following in groups. When finished be ready to participate in a whole class discussion of each question. This may take a few days to complete. Be resourceful, and give thorough and thoughtful answers. Please write answers on a separate piece of paper.

1. Let \( f \) be defined on an open interval containing \( c \), except possibly at \( c \) itself, and let \( L \) be a real number. Describe the meaning of \( \lim_{x \to c} f(x) = L \). You do not have to use the formal definition to do it, but you must be thorough.

2. Describe at least 3 different situations where a limit does not exist. Give examples of each: a function and its corresponding graph indicating why the limit doesn’t exist.

3. What is the definition of continuity at a point?

4. Describe at least 3 different situations where a function is discontinuous. Give examples of each: a function and its corresponding graph indicating the discontinuity.

5. Can continuity be used to help determine whether or not a limit exists? Explain in detail.

6. Describe some techniques for finding limits. This is a fairly involved question. Be thoughtful.