

You have 15 minutes to complete this quiz which is worth 15 points. Calculators are permitted, but no other aids are allowed. Show all work neatly and in order, and clearly indicate your final answers. Answers must be justified whenever possible in order to earn full credit. When you do use your calculator, sketch all relevant graphs and write down all relevant mathematics.

1. (2 points) Compute $\lim_{x \rightarrow 2} (x^2 + x - 6)$.

2. (4 points) What does it mean for the function $f(x)$ to be continuous at a ?

3. (5 points) Suppose that $f(x) = \frac{x^2 + x - 6}{x - 2}$.

(a) Compute $\lim_{x \rightarrow 2} f(x)$.

(b) How should $f(2)$ be defined so that f is continuous at 2?

4. (4 points) Compute $\lim_{x \rightarrow \infty} \frac{x^2 + x - 6}{4 - x^2}$.