Week 3 Assessment

1. Evaluate the limits.  If the limit does not exist, state this and give the reason.

   a. \( \lim_{x \to 2} \frac{x^2 - 4}{x - 2} \)

   b. \( \lim_{x \to 0} \frac{\sin(3x)}{x} \)

   c. \( \lim_{x \to \infty} \frac{e^x}{x^2} \)

2. Evaluate the limits.  If the limit does not exist, state this and give the reason.

   a. \( \lim_{x \to 1} \frac{x^2 - 1}{x - 1} \)

   b. \( \lim_{x \to 0} \frac{\cos(x)}{x} \)

   c. \( \lim_{x \to 0} \frac{x^2}{x} \)

3. Evaluate the limits.  If the limit does not exist, state this and give the reason.

   a. \( \lim_{x \to 3} \frac{x^2 - 9}{x - 3} \)

   b. \( \lim_{x \to 0} \frac{\sin(5x)}{x} \)

   c. \( \lim_{x \to 0} \frac{x^3}{x} \)

4. Evaluate the limits.  If the limit does not exist, state this and give the reason.

   a. \( \lim_{x \to 2} \frac{x^3 - 8}{x^3} \)

   b. \( \lim_{x \to 1} \frac{\ln(x)}{x - 1} \)

   c. \( \lim_{x \to 0} \frac{\sin(2x)}{x} \)