1. Evaluate the following limits if they exist. Briefly indicate any limit rules that you apply. If the limits do not exist, then explain why.

   a. \( \lim_{x \to 5} \frac{2x^2 - 9x - 4}{6 + 4x - x^2} \)

   b. \( \lim_{x \to 5} \frac{2x^2 - 9x - 5}{5 + 4x - x^2} \)

   c. \( \lim_{t \to 4} \frac{t + 1 - \sqrt{t^2 + 9}}{t^2 - 16} \)

   d. \( \lim_{t \to -3^-} \frac{t + 3}{|t + 3|} \)
3. Evaluate the limit, indicating briefly the limit rule applied: \( \lim_{x \to 0} \frac{x}{\sec(2x)} \)

4. Let \( f(x) = x^2 + 5 \).
   a. Apply the definition of the derivative to find \( f'(x) \).

   b. Find an equation of the line tangent to \( y = f(x) \) at the point where \( x = 2 \).

5. The cost of postage is $0.34 for the first once, and $0.28 for each additional once. Plot the cost of the postage as a function of its weight from 0 to 5 onces. At which points will this function have a limit? Which not? Discuss the one-sided limits at points in \([0, 5]\) where the limit does not exist.