1. (6 points) Evaluate the following limits without using a calculator:
   (a) \( \lim_{x \to 2} \frac{x^2 - 4}{x - 2} \)
   
   (b) \( \lim_{x \to \infty} \frac{x^2 - 2x + 4}{2 - 3x + 4x^2} \)

2. (7 points) By evaluating an appropriate limit find the slope of the tangent line to the curve 
   \( y = f(x) = x^2 - 5x \) corresponding to \( x = 1 \). Find an equation of this tangent line.

3. (7 points) Use the definition of the derivative to find the derivative function of \( f(x) = \sqrt{2x + 3} \).