Name: **Section:**

Instructions:
Please show all your work in order to receive proper credit. You are not allowed to use any calculator, formula sheet, notes or electronic devices. Quiz should be completed in one seating with no breaks. All final answers should be in the simplest form. Box your final answer.

Problem 1. (4 points) Find an equation of the line tangent to the graph of $y = 2x^2 - 3$ at $x = 1$; by using the limit definition of derivative.

Problem 2. (3 points) For what value of a is the following function continuous for all x? If this is not possible, explain why.
$$f(x) = \begin{cases} -5ax & x \neq 3 \\ \sin(\frac{\pi x}{2}) & x = 3 \end{cases}$$

Problem 3. (3 points) Use the limit definition of derivative to calculate the derivative of $f(x) = \frac{2}{x-3}$ at $x = 5$. Simplify your answer.