### Assignment 4

**Due Date:** 11/2/2013

**Grade:**

**Score:**

---

- **Problem 1:**
  - Evaluate the following limit:
    \[ \lim_{x \to 0} \frac{\sin(3x)}{x} \]

- **Problem 2:**
  - Find the derivative of the function:
    \[ f(x) = x^2 \cos(x) \]

- **Problem 3:**
  - Sketch the graph of the function:
    \[ f(x) = \frac{1}{x^2} \]

- **Problem 4:**
  - Solve the differential equation:
    \[ \frac{dy}{dx} = 2y \]

---

**Instructions:**

- **Choose a problem to solve.**
- **Show your work.**
- **Submit your solution by the due date.**

---

**Diagram:**

![Diagram](image-url)