Name: _____
Student ID: _____

Quiz 9

This quiz is graded out of 10 marks. No books, calculators, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. §3.6 #42 *(3 marks)* Suppose the quantity x of Super Titan radial tires made available each week in the marketplace is related to the unit-selling price by the equation

$$p - \frac{1}{2}x^2 = 48$$

where x is measured in units of a thousand and p is in dollars. How fast is the weekly supply of Super Titan radial tires being introduced into the marketplace when $x = 6, p = 66$, and the price/tire is decreasing at the rate of \$ 3/week?

Question 2. §3.7 #13 *(3 marks)* Find the differential of the function:

$$f(x) = \sqrt{3x^2 - x}$$

Question 3. §3.4 #35 *(4 marks)* Find the interval(s) where the function is increasing and the interval(s) where it is decreasing.

$$f(x) = \frac{x^2 - 1}{x}$$