Name: _____
Student ID: _____

Quiz 8

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. *(5 marks)* §6.6 #21 Determine whether each integral is convergent or divergent. Evaluate those that are convergent.

$$\int_{-\infty}^{\infty} \frac{x^2}{9+x^6}\,dx$$

Question 2. *(5 marks)* §7.1 #8 Sketch the region enclosed by the given curves. Then find the area of the region.

$$y = 1+\sqrt{x}, \quad y = 1+\frac{1}{3}x$$

Question 3. *(5 marks)* If $f(0) = g(0) = 0$ and f'' and g'' are continuous, show that

$$\int_0^a f(x)g''(x)\,dx = f(a)g'(a) - f'(a)g(a) + \int_0^a f''(x)g(x)\,dx$$