Name: _____
Student ID: _____

Quiz 3

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)* §5.1 #3a Estimate the area under the graph of $f(x) = \cos x$ from $x = 0$ to $x = \frac{\pi}{2}$ using four approximating rectangles and right endpoints. Sketch the graph and the rectangles. Is your estimate and underestimate or an overestimate?

Question 2. *(1 mark)* §5.2 #15 Express the limit as a definite integral on the given interval

$$\lim_{n\to\infty} \sum_{i=1}^{n} x_i \ln(1+x_i^2)\Delta x, \quad [2,6]$$

Question 3. *(1 mark)* §5.2 #38 Given that $\int_0^1 3x\sqrt{x^2+4}\,dx = 5\sqrt{5}-8$, what is $\int_1^0 3u\sqrt{u^2+4}\,du$?

Question 4. *(3 marks)* §5.2 #41 If $\int_0^9 f(x)\,dx = 37$ and $\int_0^9 g(x)\,dx = 16$, find $\int_0^9 [2f(x)+3g(x)]\,dx$.