

Name: \_\_\_\_\_  
Student ID: \_\_\_\_\_

## Quiz 10

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.** (2 marks) §8.1 #8 Find a formula for the general term  $a_n$  of the sequence, assuming that the pattern of the first few terms continues.

$$\{5, 8, 11, 14, 17, \dots\}$$

**Question 2.** (4 marks) §8.1 #30 Determine whether the sequence converges or diverges. If it converges, find the limit.

$$a_n = \frac{(\ln n)^2}{n}$$

**Question 3.** (4 marks) §8.1 #28 Determine whether the sequence converges or diverges. If it converges, find the limit.

$$a_n = \frac{\sin 2n}{1 + \sqrt{n}}$$

**Question 4.** (5 marks) Evaluate the definite integral

$$\int_0^{\frac{\pi}{4}} e^{\cos x} \sin 2x \, dx$$