

Name: \_\_\_\_\_

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

## Quiz 4

This quiz is graded out of 12 marks. No books, graphing 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.** (4 marks each) Determine if the series converges or diverges, justify by applying the correct test. If the series converges, find the sum.

1.

$$\sum_{n=1}^{\infty} \frac{2n}{n^2 + 1}$$

2.

$$\sum_{n=1}^{\infty} \frac{n^3 + 1}{n^3 + n^2 + 1}$$

3.

$$\sum_{n=1}^{\infty} \left[ \frac{3}{2^n} - 4 \left( \frac{1}{3} \right)^{n+1} \right]$$