

Name:

Result:

**1.** *(5 points)*

The fourth term of an arithmetic series is 8. The sum of the first five terms is 25.

(a) Find the first term and the common difference.

(b) Find the sum of the first ten terms.

**2.***(5 points)*

The sum of an arithmetic series is given by  $S_n = n(2n + 3)$ .

- (a) Find the sum of the first 10 terms.
- (b) Find the first term and the common difference of the sequence.

**3.***(5 points)*

The second term of an infinite geometric sequence is 24 and the third term is  $12(p - 1)$ . Find the common ratio of this sequence given that the series is convergent and the sum of the first three terms is 76.

4. *(5 points)*  
The sum of the first three terms of an infinite geometric sequence is 21. The sum of all its terms is  $\frac{64}{3}$ .

(a) Find the first term and the common ratio of the sequence.

(b) Find the least value of  $n$ , such that the difference between the sum of  $n$  terms of the sequence and the sum of all its terms is less than  $\frac{1}{1000}$ , that is:

$$S_{\infty} - S_n < \frac{1}{1000}$$