1. The first three terms of an infinite geometric sequence are 32, 16 and 8.

(a) Write down the value of r.

(1)

(b) Find u_6.

(2)

(c) Find the sum to infinity of this sequence.

(2)
(Total 5 marks)

2. Consider the infinite geometric sequence $3000, -1800, 1080, -648, \ldots$.

(a) Find the common ratio.

(2)

(b) Find the 10th term.

(2)

(c) Find the **exact** sum of the infinite sequence.

(2)
(Total 6 marks)

3. Consider the infinite geometric sequence $25, 5, 1, 0.2, \ldots$.

(a) Find the common ratio.

(b) Find

(i) the 10th term;

(ii) an expression for the nth term.

(c) Find the sum of the infinite sequence.

(Total 6 marks)

4. Consider the infinite geometric series $405 + 270 + 180 + ...$

    (a)   For this series, find the common ratio, giving your answer as a fraction in its simplest form.

    (b)   Find the fifteenth term of this series.

    (c)   Find the **exact** value of the sum of the infinite series.

(Total 6 marks)

5. The first term of an infinite geometric sequence is 18, while the third term is 8. There are two possible sequences. Find the sum of each sequence.

(Total 6 marks)

6. Find the sum of the infinite geometric series

$$\frac{2}{3} - \frac{4}{9} + \frac{8}{27} - \frac{16}{81} + ...$$

(Total 4 marks)