1. The seventh term, u_7, of a geometric sequence is 108. The eighth term, u_8, of the sequence is 36.

(a) Write down the common ratio of the sequence.

(1)

(b) Find u_1.

(2)

The sum of the first k terms in the sequence is 118 096.

(c) Find the value of k.

(3)

(Total 6 marks)

2. A geometric sequence has all its terms positive. The first term is 7 and the third term is 28.

(a) Find the common ratio.

(b) Find the sum of the first 14 terms.

(Total 6 marks)

3. Consider the geometric sequence 8, a, 2,… for which the common ratio is $\frac{1}{2}$.

(a) Find the value of a.

(b) Find the value of the eighth term.

(c) Find the sum of the first twelve terms.

(Total 6 marks)

4. A geometric sequence has second term 12 and fifth term 324.

(a) Calculate the value of the common ratio.

(4)

(b) Calculate the 10^{th} term of this sequence.

(3)

(c) The k^{th} term is the first term that is greater than 2000. Find the value of k.

(3)

(Total 10 marks)

5. The first term of an arithmetic sequence is 0 and the common difference is 12.

(a) Find the value of the 96^{th} term of the sequence.

(2)

The first term of a geometric sequence is 6. The 6^{th} term of the geometric sequence is equal to the 17^{th} term of the arithmetic sequence given above.

(b) Write down an equation using this information.

(2)

(c) Calculate the common ratio of the geometric sequence.

(2)

(Total 6 marks)

6. (a) The first term of an arithmetic sequence is –16 and the eleventh term is 39.
Calculate the value of the common difference.

(b) The third term of a geometric sequence is 12 and the fifth term is $\frac{16}{3}$.

All the terms in the sequence are positive.
Calculate the value of the common ratio.

(Total 8 marks)