1.1 Applying Algebraic skills to sequences and series

- **Finding the general term and summing arithmetic sequences**

1. An arithmetic sequence is given by: 6, 27, 48….. Find
   (a) the 40th term of the sequence (b) the sum of the first 40 terms

2. An arithmetic sequence is given by: 3, 22, 41….. Find
   (a) the 30th term of the sequence (b) the sum of the first 30 terms

3. An arithmetic sequence is given by: 5, 22, 39….. Find
   (a) the 50th term of the sequence (b) the sum of the first 50 terms

4. An arithmetic sequence is given by: 2, 29, 56….. Find
   (a) the 40th term of the sequence (b) the sum of the first 40 terms

1.2 Applying Algebraic skills to sequences and series

- **Finding the general term and summing geometric sequences**

5. A geometric sequence is given by: 6, 18, 54….. Find
   (a) the 15th term of the sequence (b) the sum of the first 15 terms

6. A geometric sequence is given by: 3, 6, 12….. Find
   (a) the 20th term of the sequence (b) the sum of the first 20 terms

7. A geometric sequence is given by: 1, 7, 49….. Find
   (a) the 11th term of the sequence (b) the sum of the first 11 terms

8. A geometric sequence is given by: 5, 20, 100….. Find
   (a) the 13th term of the sequence (b) the sum of the first 13 terms

Answers:

1 (a) $U_{40} = 825$ **(b)** $S_{40} = 16620$ **2 (a)** $U_{30} = 554$ **(b)** $S_{30} = 8355$

3 (a) $U_{50} = 838$ **(b)** $S_{50} = 21075$ **4 (a)** $U_{40} = 1055$ **(b)** $S_{40} = 63420$

5 (a) $U_{15} = 28697814$ **(b)** $S_{15} = 43046718$ **6 (a)** $U_{20} = 1572864$ **(b)** $S_{20} = 3145725$

7 (a) $U_{11} = 282475249$ **(b)** $S_{11} = 329554457$ **8 (a)** $U_{13} = 83886080$ **(b)** $S_{13} = 111848105$