**1** In an arithmetic sequence, the first term is $-8$ and the sum of the first 20 terms is 790.

    **a** Find the common difference.

**b** **i** Find $u_{28}$.

    **ii** Hence, find $S_{28}$.

**c** Find how many terms it takes for the sum to exceed 2000.

**2** In an arithmetic series, $S_{40} = 1900$ and $u_{40} = 106$. Find the value of the first term and the common difference.

**3** The sum of an infinite geometric series is 20, and the common ratio is 0.2. Find the first term of this series.

**4** The sum of an infinite geometric series is three times the first term. Find the common ratio of this series.

**6** In a geometric sequence, the fourth term is 8 times the first term. The sum of the first 10 terms is 2557.5. Find the 10th term of this sequence.

**8** A geometric sequence has all positive terms. The sum of the first two terms is 15 and the sum to infinity is 27.

   **a** Find the value of the common ratio.

   **b** Hence, find the first term.