

103E – Problem Solving

1. In a geometric sequence, the first term is 31250, and the common ratio is 0.4.
Find the value of the sixth term of the sequence:

2. Take the geometric sequence: 40, 100, 250, ...
Find the sum of the first eight terms to 2 decimal places:

3. In a geometric sequence, $u_6 = \frac{64}{3}$ & $u_2 = 108$. Find the possible values of the common ratio:

4. In a geometric sequence, $u_1 = 16$ & $u_3 = 36$. Give the least value of n , such that $u_n > 400$:

5. For a geometric sequence, the second term is 15, and the fourth term is 135.
a) Find the common ratio, r , given that $r > 0$:

b) Find the value of:

6. In a geometric sequence, the sixth term is 1250, and the common ratio is -5.

Find u_1 , in the form $\frac{a}{b}$:

7. In the following geometric progression, where $u_1 = -256$ & $u_5 = -81$.

Find the possible values for the common ratio:

8. A sequence is defined by the n^{th} formula: $u_n = 3(2)^n$

a) Find the third term:

b) Is this geometric sequence, an arithmetic, or neither?

c) Find the sum of the first five terms:

9. If the second term of a sequence is 44, and each term is 10% more than the previous term.

a) Find the common ratio:

b) Find the value of $u_1 - u_{10}$:

10. You have two sequences u and v . u_n is given by $u_n = 0.5(2)^{n-1}$ and v_n is the geometric sequence: 8, 10, 12.5, 15.625, ...

a) Find u_1 , u_2 & u_3 :

b) Find $u_1 \cdot v_1$ & $u_2 \cdot v_2$:

c) Hence, or otherwise, find the 7th term of the sequence: 4, 10, 62.5, 156.25, ...
to four decimal places: