Tutorial

Level 1 questions:

1.   For a GP, $a = 5$ and $R=3$. Write down the first three terms.

2.   Find the first term of a GP if the 5th term is 32 and the common ratio is 2.

3.   A man's annual income increases by 10% each year. His income in 1990 was $72000.

        Find his total earnings from 1990 to 1997 (correct to the nearest dollars).

4.   Given the geometric series $4 + 12 + 36 + \ldots$ If the sum of the first n terms of the series

        is 484, find the value of n.

Level 2 questions:

5.   Given that the 2nd term and the 5th term of a GP are 125 and -8 respectively. Find the

        common ratio and the 4th term.

6.   For the geometric series $1+(-\frac{1}{2})+\frac{1}{4}+\cdots+(-\frac{1}{32})$, find

        a) the number of terms in the series.

        b) the sum of the series.

Level 3 questions:

7.   The 2nd and 6th term of a geometric progression are $\frac{1}{8}$ and 4 respectively. Find

        a) the common ratio
        b) the first term
        c) the general term

Solution

1.   5, 15, 45

2.   2

3.   823384 (there are 8 terms)

4.   5

5.   common ratio = -0.4, $T(4) = 20$

6.   a) 6   b) $\dfrac{21}{32}$

7.   a) $R = 2$ or -2
      b) For $R = 2$, $a = 2^{-4}$, for $R = -2$, $a = -2^{-4}$
      c) For $R = 2$, $T(n) = 2^{-4}(2)^{n-1} = 2^{n-5}$#, for $R = -2$,
      $T(n) = -2^{-4}(-2)^{n-1} = -(-2)^{4}(-2)^{n-1} = -(-2)^{n-5}$#