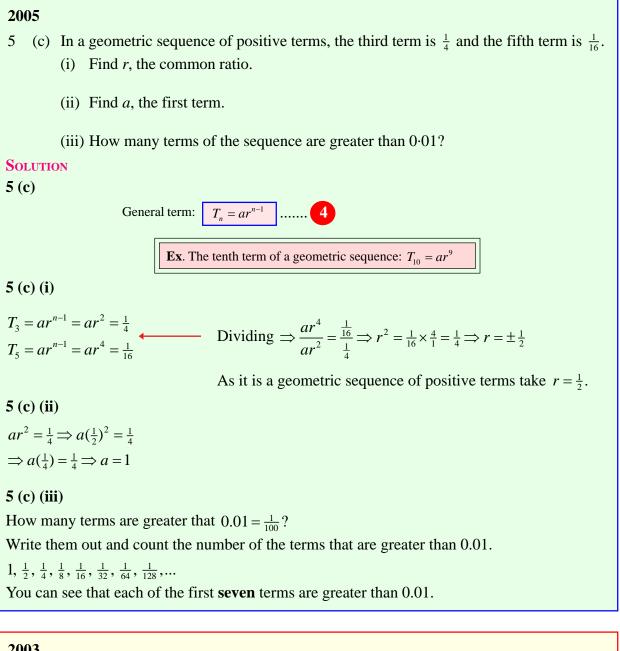
## SEQUENCES & SERIES (Q 5, PAPER 1)

## **Lesson No. 7: Geometric Sequences**



## 2003

5 (a) The first term of a geometric sequence is 4 and the common ratio is 1.5. Write down the next three terms of the sequence.

## SOLUTION

Write down the first term and keep on multiplying by the common ratio, r, to generate the terms of the geometric sequence.

4, 6,  $\frac{27}{2}$ ,...

1997
5 (a) $T_1 + T_2 + T_3 + \dots$ is a geometric series.
The first term, $T_1$ , is 1 and the common ratio is 2.
Show that
$T_3 + T_5 = 2(T_2 + T_4).$
Solution
To produce a <b>GEOMETRIC SEQUENCE</b> , start with a number, <i>a</i> , and keep on multiplying by a number, <i>r</i> , forever.
Geometric series: $1 + 2 + 4 + 8 + 16 +$
$T_1 = 1, T_2 = 2, T_3 = 4, T_4 = 8, T_5 = 16$
$T_3 + T_5 = 4 + 16 = 20$
$2(T_2 + T_4) = 2(2 + 8) = 2(10) = 20$
$\therefore T_3 + T_5 = 2(T_2 + T_4)$