

- 1.** $2k + 2$, $5k + 1$ and $10k + 2$ are three successive terms of a geometric sequence. Find the value(s) of k .
- 2.** Evaluate $\frac{1 + 2 + 3 + \dots + 10}{1 + \frac{1}{2} + \frac{1}{4} + \dots + \frac{1}{512}}$
- 3.** Find a number which, when added to each of 2, 6 and 13 gives three numbers in geometric sequence.
- 5.** Find the sum of all intergers between 200 and 400 that are divisible by 6.
- 6.** Find the sum of the first 50 terms of an arithmetic progression given that the 15th term is 34 and the sum of the first 8 terms is 20.
- 7.** Find the value of p so that $p + 5$, $4p + 3$ and $8p - 2$ will form successive terms of an arithmetic progression.
- 8.** For the series defined by $S_n = 3n^2 - 11n$, find t_n and hence show that the sequence is arithmetic.
- 9.** How many terms of the series $6 + 3 + \frac{3}{2} + \dots$ must be taken to give a sum of $11\frac{13}{16}$?
- 10.** If $1 + 2x + 4x^2 + \dots = \frac{3}{4}$, find the value of x .
- 11.** Logs of wood are stacked in a pile so that there are 15 logs on the top row, 16 on the next row, 17 on the next and so on. If there are 246 logs in total,
(a) how many rows are there?
(b) how many logs are there in the bottom row?
- 12.** The lengths of the sides of a right angled triangle form the terms of an arithmetic sequence. If the hypotenuse is 15 cm in length, what is the length of the other two sides?
- 13.** The sum of the first 8 terms of a geometric series is 17 times the sum of its first four terms. Find the common ratio.
- 14.** Three numbers a , b and c whose sum is 15 are successive terms of a G.P, and b , a , c are successive terms of an A.P. Find a , b and c .
- 15.** The sum of the first n terms of an arithmetic series is given by $S_n = \frac{n(3n + 1)}{2}$.
(a) Calculate S_1 and S_2 .
(b) Find the first three terms of this series.
(c) Find an expression for the n th term.