

SESSION 2020-2021

CLASS 11TH

MISCELLANEOUS EXERCISE(Ex-9)

Find the sum of the following series up to n terms:

(i) $5 + 55 + 555 + \dots$

(ii) $.6 + .66 + .666 + \dots$

Find the 20th term of the series $2 \times 4 + 4 \times 6 + 6 \times 8 + \dots + n$ terms.

Find the sum of the first n terms of the series: $3 + 7 + 13 + 21 + 31 + \dots$

Find the sum of the following series up to n terms:

$$\frac{1^3}{1} + \frac{1^3 + 2^3}{1+3} + \frac{1^3 + 2^3 + 3^3}{1+3+5} + \dots$$

Show that
$$\frac{1 \times 2^2 + 2 \times 3^2 + \dots + n \times (n+1)^2}{1^2 \times 2 + 2^2 \times 3 + \dots + n^2 \times (n+1)} = \frac{3n+5}{3n+1} .$$

The ratio of the A.M. and G.M. of two positive numbers a and b , is $m : n$. Show

that $a : b = \left(m + \sqrt{m^2 - n^2} \right) : \left(m - \sqrt{m^2 - n^2} \right) .$