

# NCERT Mathematics Ex 9.4 Q6

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**Question:** 1) Find the sum to n terms of  
 $3 \times 8 + 6 \times 11 + 9 \times 14 + \dots$

**Solution:**

Writing the general term of the series

$$T_n = (3r + 3) \times (8 + 3r)$$

$$\sum_{r=0}^n 9r^2 + 33r + 24 \quad (1)$$

Using formulas for the sum of n terms (i) and sum of the squares of the n terms (ii)

$$\sum_{r=0}^n r = \frac{n(n+1)}{2} \quad (i)$$

$$\sum_{r=0}^n r^2 = \frac{n(n+1)(2n+1)}{6} \quad (ii)$$

Equation (1) evaluates to

$$\Rightarrow \frac{33n(n+1)}{2} + \frac{9n(n+1)(2n+1)}{6} + 24n$$