This e-book Includes some special type of problems that belongs to sum of n terms:

sum of n terms = $S_n = \frac{n}{2}\{2a + (n-1)d\}$

nth term = $T_n = a + (n - 1)d$

Question 1: If the 8th term of an A.P. is 15, then the sum of its 15 terms will be equal to_____.

Solution : As per question S_{15} is to be calculated,

$t_8 = 15$ (given)

$a + 7d = 15$ ----------(1)

$S_{15} = \frac{15}{2}\{2a + 14d\}$

$S_{15} = 15\{a + 7d\} = 15 \times 15 = 225$

Question 2: If the 5th term of an A.P. is 24, then the sum of its 9 terms will be equal to_____.

Solution : As per question S_9 is to be calculated,

$t_5 = 24$ (given)

$a + 4d = 24$ ----------(1)

$S_9 = \frac{9}{2}\{2a + 8d\}$

$S_9 = 9\{a + 4d\} = 9 \times 24 = 216$

Question 3: If the 24th term of an A.P. is 120, then the sum of its 47 terms will be equal to_____.

Solution : As per question S_{47} is to be calculated,

$t_{24} = 120$ (given)

$a + 23d = 120$ ----------(1)

$S_{47} = \frac{47}{2}\{2a + 46d\}$

$S_{47} = 47\{a + 23d\} = 47 \times 120 = 5640$

Question 4: If the sum of the 4rth term and the 12th term of an A.P. is 8. What is the sum of the first 15 terms of the progression ?

Solution: As per question

$t_4 + t_{12} = 8$

$a + 3d + a + 11d = 8$

$2a + 14d = 8$

$a + 7d = 4$----------(1)

Now S_{15} is to be calculated

$S_{15} = \frac{15}{2}\{2a + 14d\} \Rightarrow S_{15} = 15\{a + 7d\} = 15 \times 4 = 60$

Question 5: If the sum of the 5th term and the 10th term of an A.P. is 30. What is the sum of the first 14th terms of the progression ?

Solution: As per question

$t_5 + t_{10} = 30$

$a + 4d + a + 9d = 30$

$2a + 13d = 30$

$2a + 13d = 30$----------(1)

Now S_{14} is to be calculated

$S_{14} = \frac{14}{2}\{2a + 13d\} \Rightarrow S_{14} = \frac{14}{2} \times 30 = 7 \times 30 = 210$

Question 6: If the sum of the 16th term and the 10th term of an A.P. is 96. What is the sum of the first 25th terms of the progression ?

Solution: As per question

$t_{16} + t_{10} = 96$

$a + 15d + a + 9d = 96$

$2a + 24d = 96$

$2a + 24d = 96$

$a + 12d = 48$ ----------(1)

Now S_{25} is to be calculated

$S_{25} = \frac{25}{2}\{2a + 24d\} \Rightarrow S_{25} = 25\{a + 12d\}$

$S_{25} = 25 \times 48$

$S_{25} = 1200$

Question 7: If the 92th term of an A.P. is 339, then the sum of its 183rd terms will be equal to_____.

Solution : As per question S_{183} is to be calculated,

$t_{92} = 339$ (given)

$a + 91d = 339$ ----------(1)

$S_{183} = \frac{183}{2}\{2a + 182d\}$

$S_{183} = 183 \times \{a + 91d\}$

$S_{183} = 183 \times 339$

$S_{183} = 62,037$