Sum of n terms of AP — AP

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$$\boxed{S_n = \frac{n}{2}\left[2a + (n-1)d\right]}$$

OR

$$\boxed{S_n = \frac{n}{2}\left[a + d\right]}$$

Ex - 5·3

1(ii) 2, 7, 12 ... 10 terms

$a = 2$, $d = 7-2 = 5$, $n = 10$

$S_n = \frac{n}{2}\left(2a + (n-1)d\right)$

$= \frac{10}{2}\left(2 \times 2 + (10-1) \times 5\right)$

$= 5(4 + 45) = 245$

2(ii) $34 + 32 + 30 + \cdots - 10$

$a = 34$, $d = 32 - 34 = -2$

$l = 10$

$l = a + (n-1)d$

$10 = 34 + (n-1)(-2)$

$-\cancel{44}^{12} = (n-1)(-2)$

$\boxed{n = 13}$

$S_n = \frac{n}{2}(a + d)$

$= \frac{13}{2}(34 + 10)$

$= \frac{13}{\cancel{2}} \times \cancel{44}^{22}$

$= 286$

Not do +Ques ^{t} 3

⑤ $a = 5$, $l = 45$, $S_n = 400$

$$S_n = \frac{n}{2}(a+l)$$

$$400 = \frac{n}{2}(5+45)$$

$$400 = \frac{n}{2} \times 50$$

$$n = 16$$

$$l = a + (n-1)d$$

$$45 = 5 + (16-1)d$$

$$40 = 15d$$

$$d = \frac{40}{15} = \frac{8}{3}$$

$\underline{10}$ (i) $a_n = 3 + 4n$

put $n = 1, 2, 3 -$

$$a_1 = 3 + 4 = 7$$

$$a_2 = 3 + 4 \times 2 = 11$$

$$a_3 = 3 + 4 \times 3 = 15$$

$$\overline{AP = 7, 11, 15 -}$$

$a = 7$, $d = 4$

$n = 15$

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

$$= \frac{15}{2}(2 \times 7 + (15-1) \times 4)$$

Simplify

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$8, 16, 24 \text{ --- } 120$

$d =$

$a = 8, \quad 16 - 8 = 8$

$n = 15$

$S_n = \frac{n}{2}\left(2a + (n-1)d\right)$

$= \frac{15}{2}\left(2 \times 8 + (15-1) \times 8\right)$

<u>Simplify</u>

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AP

$200, 250, 300 \text{ ---}$

$a = 200$

$d = 50$

$n = 30$

$S_n = \frac{n}{2}\left(2a + (n-1)d\right)$

$= \frac{30}{2}\left(2 \times 200 + (30-1) \times 50\right)$

<u>Simplify</u>

$S_n = 700 \quad \nearrow$

$n = 7$

$d = -20$

$S_n = \frac{n}{2}\left(2a + (n-1)d\right)$

$700 = \frac{7}{2}\left(2 \times a + (7-1) \atop (-20)\right)$

$200 = 2a - 120$

$2a = 320$

$a = 160$

Prize

$160, 140, 120, 100$

$80, 60, 40$

3, 6, 9 ___

$a = 3,\ d = 3$

$n = 12$

$$S_n = \frac{n}{2}\left(2a + (n-1)d\right)$$

$$= \frac{12}{2}\left(2 \times 3 + (12-1) \times 3\right)$$

$$= 6 \times (6 + 33)$$

$$= 6 \times 39$$

$$= \underline{234}\ \ \text{B}$$