7/7/2020
TUESDAY

MATHEMATICS

STD - 8
class - 09

Assignment

Answers of 28th page

1) Since the sum of the first five terms is 30,

∴ 30 is 5 times the middle number.

$n = 5$

$$\text{mid term} = \frac{\text{Sum}}{\text{no of terms}} = \frac{30}{5} = \underline{6}$$

∴ 4, 5, 6, 7, 8, ...

2, 4, 6, 8, 10, ...

-2, 2, 6, 10, 14, ...

2) Sum = 100 (given)

$$x_1 + x_2 + x_3 + x_4 = 100$$

$$2[x_1 + x_4) = 100$$

$$1 + x_4 = \frac{100}{2} = 50$$

$$x_4 = 50 - 1 = \underline{49}$$

$$d = \frac{49-1}{4-1} = \frac{48}{3} = \underline{16}$$

1, 17, 33, 49, ...

3) Let x be the first term and d be the common difference of the arithmetic sequence.

∴ first 4 terms $= x, x+d, x+2d, x+3d$

Sum of the two terms on the two ends

$= x + x + 3d$

$= 2x + 3d$

Sum of the two terms in the middle

$= x + d + x + 2d$

$= x + x + d + 2d$

$= \underline{\underline{2x + 3d}}$

4) Sum of the first four terms $= 100$

Sum of the 1st and 4th terms and sum of the 2nd and 3rd terms are equal.

∴ 2nd term + 3rd term $= 50$

∴ • Let $\underline{x_1}, 20, 30, \underline{x_4}$

$d = 30 - 20 = \underline{\underline{10}}$

$\therefore x_1 = 10$

$x_4 = 40$

sequences $= 10, 20, 30, 40, \ldots$

$d = 2 \leftarrow 22, 24, 26, 28, \ldots$

$d = 6 \leftarrow 16, 22, 28, 34, \ldots$

$d = 14 \leftarrow 4, 18, 32, 46, \ldots$

5) i) Sum of first 3 terms $= S_3 = 300$

$\therefore x_2 = \frac{300}{3} = 100$

$x_1 = 30$ (given)

$\therefore d = 100 - 30 = \underline{\underline{70}}$

$\therefore x_3 = 100 + 70 = 170$

$\therefore$ sequence $= 30, 100, 170, \ldots$

ii) $S_4 = 300$

Sum of 1st and 4th terms and the sum of the second and third terms are equal.

$x_1 + x_4 = 150$

$x_1 = 30$ (given)

$30 + x_4 = 150$

$\therefore x_4 = \underline{\underline{120}}$

$30, —, —, 120, \ldots$

$d = \frac{120 - 30}{4 - 1} = \frac{90}{3} = \underline{\underline{30}}$

$\therefore$ sequence $= 30, \underline{\underline{60}}, \underline{\underline{90}}, 120, \ldots$

iii) $x_1 = 30$

$$x_1 + x_2 + x_3 + x_4 + x_5 = 300$$

$$x_3 = \frac{300}{5} = \underline{60}$$

$$30, \underline{45}, 60, \underline{75}, \underline{90} = 300$$

$$x_2 = \frac{30+60}{2} = \frac{90}{2} = \underline{45}$$

$$x_4 = 60 + 15 = \underline{75}$$

iv) $x_1 = 30$

Sum of first 6 terms $= 300$

$\therefore 30 + x_2 + x_3 + x_4 + x_5 + x_6 = 300$

$x_1 + x_6 = x_2 + x_5 = x_3 + x_4$

sum of 3 pairs $= 300$

$\therefore$ sum of 1 pair $= 100$

1st term + 6th term $= 100$

1st term $= 30$ (given)

6th term $= x_6 = 100 - 30 = \underline{70}$

$30, x_2, x_3, x_4, x_5, 70$

$$d = \frac{70-30}{6-1} = \frac{40}{5} = \underline{8}$$

$\therefore$ sequence $= \underline{30}, \underline{38}, \underline{46}, \underline{54}, 62, 70$

$\therefore$ first 3 terms $= \underline{30, 38, 46}$

6. i) Here, $S_5 = 150$

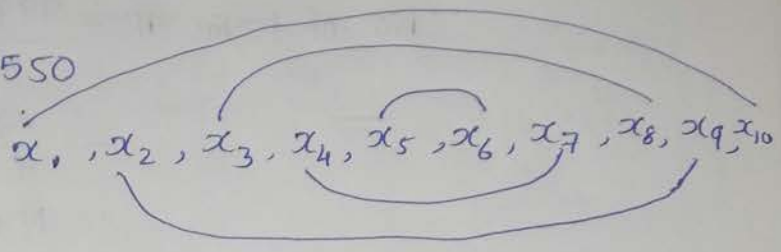
x_3 is the mid term

$\therefore x_3 = \frac{\text{Sum}}{\text{no. of terms}}$

$= \frac{150}{5}$

$\therefore x_3 = \underline{30}$

ii) $S_{10} = 550$



$(x_3 + x_8) \times 5 = 550$

$x_3 + x_8 = \frac{550}{5} = \underline{110}$

$x_8 = 110 - x_3$

$= 110 - 30$

$x_8 = \underline{80}$

iii) first three terms $= x_1, x_2, 30$

$x_1 = \frac{30}{3} = \underline{10}$

$\therefore$ sequence $= \underline{10, 20, 30, \ldots}$

7) no. of sides of a pentagon = 5

Sum of angles $= (n-2) \times 180^\circ$

$= 5-2 \times 180^\circ$

$= 3 \times 180^\circ$

$= \underline{540^\circ}$

Pentagon has 5 interios angles, they are in arithmetic sequence.

$x_3 = \frac{540}{5} = \underline{108}$

Sum of each pair = 2 × middle term

$= 2 \times 108$

$= \underline{216}$

Smallest angle is 36,

∴ the other terms are

$= \underline{36, 72, 108, 144, 180.}$

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