

$$t_n = 5, 9, 13, 17, \dots$$

سوال ۱

$$t_n = 4n + 1 \quad (\text{الف})$$

$$t_{10} = 4 \times 10 + 1 = 41 \quad (\text{ب})$$

$$t_n = 6, 10, 14, 18, \dots$$

سوال ۲

$$t_n = 4n + 2 \rightarrow t_{10} = 4 \times 10 + 2 = 42 \quad (\text{الف})$$

$$6 + 10 + 14 + \dots + 42 \rightarrow \text{مجموع} = \frac{(42 + 6) \times 10}{2} = 240, \quad \text{تعداد} = 10$$

$$(6, 10, 14, 18), (22, 26, 30, 34), (38, 42, 46, 50), \dots \quad (\text{ب})$$

$$6, 22, 38, 54, 70, 86, 102, 118 \rightarrow \text{عدد اول هر دسته را بنویسید.}$$

$$118, 122, 126, 130 \rightarrow 494$$

روش ۲

$$\text{جمله اول} \rightarrow 1, 5, 9, \dots \rightarrow t_n = 4n - 3 \rightarrow t_1 = 4 \times 1 - 3 = 1$$

$$\text{هر دنباله} \quad t_n = 4n + 2 \rightarrow t_{29} = 4 \times 29 + 2 \rightarrow 118$$

$$118, 122, 126, 130 \rightarrow 494$$

$$1 + \sqrt{3}, 2, 3 - \sqrt{3}, \dots$$

سوال ۳

$$t_n = (1 - \sqrt{3})n + 2\sqrt{3}$$

$$t_{23} = (1 - \sqrt{3})23 + 2\sqrt{3} = 23 - 21\sqrt{3}$$

$$t_{25} = (1 - \sqrt{3})25 + 2\sqrt{3} = 25 - 23\sqrt{3}$$

$$t_{25} - t_{23} = 25 - 23\sqrt{3} - (23 - 21\sqrt{3}) = 2 - 2\sqrt{3}$$



1. $a_n = \omega^{2n}, 3 \times 2\omega^n, \omega^y$, $b_n = x, 2, y$ سوال 4

2. $3 \times \omega^{2n} - \omega^{2n} = \omega^{2n}(3-1) = 2 \times \omega^{2n}$

3. $\omega^y - (3 \times \omega^{2n}) = 2 \times \omega^{2n} \rightarrow \omega \times \omega^{2n} = \omega^y \rightarrow \omega^{2n+1} = \omega^y$

4. $\rightarrow x=1, y=3 \rightarrow x \times y = 1 \times 3 = \underline{3}$

6. $2x-4, 2x-1, 4x, \dots$ سوال 5

7. $3 = 4x - 2x + 1 \rightarrow 2 = 2x \rightarrow x = \frac{1}{2}$

8. $-3, 0, 3, ? \rightarrow ? = \underline{6}$

10. $a_n = 3, 5, 7, \dots \rightarrow a_n = 2n+1, a_{20} = 20 \times 2 + 1 = 41$ سوال 6

11. $b_n = 2, 5, 1, \dots \rightarrow b_n = 3n-1, b_{20} = 20 \times 3 - 1 = 59$

12. $c_n = 5, 11, 17, \dots \rightarrow c_n = 6n-1 \rightarrow c_{27} = 6 \times 27 - 1 = 161$

13. تا جملی هفتم الی جملی بیستم 7 عدد مشترک بین 2 دنباله داریم.

14. جواب 8. 7

16. $a_1 + a_2 + a_3 = 21$ $a_1 + a_3 + a_5 = 105$ سوال 7

17. $a_1 + a_1 + d + a_1 + 2d = 21 \rightarrow 3a_1 + 3d = 21 \rightarrow a_1 + d = 7$

18. $a_1 + a_1 + 2d + a_1 + 4d = 105 \rightarrow 3a_1 + 6d = 105 \rightarrow a_1 + 2d = 35$

19. $a_1 + d = 7$

20. $a_1 + 2d = 35$ $d = 21 \rightarrow a_1 = -21$ جواب آخر = $-\frac{1}{3}$

21. $a_3 - a_2 + a_1 \rightarrow a_1 + 2d - a_1 - d + a_1 = a_1 + d \rightarrow 7$



Senobar

$\frac{a_3 - a_2 + a_1}{-21} = \underline{\underline{\frac{1}{3}}}$

$$a_1 + a_2 + a_3 = 15, a_8 + a_9 = 25$$

سوال ۸

$$a_1 + a_1 + d + a_1 + 2d = 15, a_1 + 3d + a_1 + 4d = 25$$

$$3a_1 + 3d = 15 \rightarrow a_1 + d = 5, 2a_1 + 7d = 25$$

$$a_1 + d = 5 \rightarrow 2a_1 + 2d = 10$$

$$2a_1 + 7d = 25 \rightarrow 2a_1 + 7d = 25$$

$$5d = 15 \rightarrow d = 3, a_1 = 2$$

$$a_{10} = a_1 + 9d \rightarrow a_{10} = 2 + 9 \times 3 = 29$$

$$S_9 = 9 S_3$$

سوال ۹

$$(a_1 + a_1 + d + a_1 + 2d + a_1 + 3d + a_1 + 4d + a_1 + 5d + a_1 + 6d + a_1 + 7d + a_1 + 8d + a_1 + 9d) \rightarrow 9a_1 + 36d$$

$$S_3 = a_1 + a_1 + d + a_1 + 2d = 3a_1 + 3d$$

$$(3a_1 + 3d) \times 9 = 9a_1 + 36d \rightarrow 27a_1 + 27d = 9a_1 + 36d$$

$$18a_1 - 9d = 0 \rightarrow 9(2a_1 - d) = 0 \rightarrow 2a_1 - d = 0 \rightarrow 2a_1 = d$$

$$\frac{a_{10}}{a_7} \rightarrow \frac{a_1 + 9d}{a_1 + 6d} = \frac{39a_1}{13a_1} = 3$$

$$a_1 = 11, a_1 + 4d = 35$$

سوال ۱۰

$$4d = 24 \rightarrow d = 6 \rightarrow a_8 = 11 + (3 \times 6) = 29$$

$$a_1, \dots, 13 \rightarrow a_1, \dots, 13 \rightarrow \frac{13 - a_1}{n+1} \rightarrow -an - a = -25 \rightarrow -an = 20 \rightarrow n = 4$$

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