

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

$+4 \quad +4$

$$t_n = 4n + 1 \text{ (الف)}$$

ب) صلب دوم:

$$t_{10} = 10 \times 4 + 1 = 41$$

$$t_n = 4, 10, 16, 22, 28, 34, 40, 46, 52, 58, 64, 70, 76, 82, 88, 94, 100$$

$+6 \quad +6 \quad +6 \quad +6 \quad +6 \quad +6 \quad +6 \quad +6 \quad +6 \quad +6$

الف) مجموع ۱۰ صلب اول:

$$\frac{n}{2} (a_n + a_1) = \frac{10}{2} (42 + 4) = 240$$

ب) مجموع ۴ صلب اول: t_1, t_2, t_3, t_4

$$t_1 = 4, t_2 = 10, t_3 = 16, t_4 = 22$$

$$S_4 = \frac{4}{2} (4 + 22) = 52$$

$$t_n = 1 + \sqrt{3}, 2, 3 - \sqrt{3} \rightarrow d = 1 - \sqrt{3}$$

$$t_{13}, t_{14}, t_{15}$$

افزار صلب ۱۳، ۱۴، ۱۵:

$$t_{15} - t_{13} = 2d = 2(1 - \sqrt{3}) = 2 - 2\sqrt{3}$$

$$a_n = \Delta^m, 2 \times \Delta^m, \Delta^y \rightarrow \Delta \times \Delta^m = \Delta^y$$

$$\Delta^{m+1} = \Delta^y \rightarrow m+1 = y$$

$$|m \cdot y = 2 \cdot 1 = 2|$$

$$b_n = n, 2, y \rightarrow 2 = \frac{n+y}{2} \rightarrow n+y = 4$$

$$y = 3$$

$$m - y = -1$$

$$3m = 2 \rightarrow m = 1$$

$$2n-2, 2n-1, 4n, 12$$

$$(2n-1) + 3 = 4n$$

$$2n+2 = 4n \rightarrow 2n = 2 \rightarrow n = \frac{1}{2}$$

$$t_4 = 4n+3 = 4 \times \frac{1}{2} + 3 = 5$$

$$a_n = 2, 5, 9, 11, \dots \rightarrow a_n = 2n+1 \rightarrow 2 \times 20 + 1 = 41$$

جواب: 41

$$b_n = 2, 5, 11, \dots \rightarrow b_n = 3n-1 \rightarrow 3 \times 20 + 1 = 61$$

$$4n-1 \leq 41 \rightarrow 4n \leq 42 \rightarrow n \leq 10.5 \rightarrow n \leq 10$$

$$4n-1 \leq 61 \rightarrow 4n \leq 62 \rightarrow n \leq 15.5 \rightarrow n \leq 15$$

$n \leq 10$

$$a_1 + a_r + a_s = 21 \rightarrow a_r + d + a_r + a_s + d = 21 \rightarrow 2a_r + a_s + 2d = 21$$

$$a_1 + a_r + a_s = 105 \rightarrow a_s - 2d + a_r + a_s + 2d = 105 \rightarrow 2a_s = 105$$

$$d = a_s - a_r = 20 - 7 = 13$$

$$\frac{V}{-21} = -\frac{1}{21}$$

$$a_1 = a_r - d = 7 - 13 = -6 \rightarrow a_s - a_r + a_1 = 20 - 7 - 6 = 7$$

$$a_1 + a_r + a_s = 15 \rightarrow 3a_1 + 3d = 15 \rightarrow a_1 + d = 5$$

$$a_r + a_s = 20 \rightarrow 2a_1 + 2d = 20$$

$$2a_1 + 2d = 20$$

$$-2(a_1 + d = 5)$$

$$2d = 10$$

$$a_{10} = a_1 + 9d = 7 + 9 \times 13 = 118$$

$$S_9 = 9S_r$$

$$\frac{a_{r0}}{a_v} = \frac{a_1 + 9d}{a_1 + 4d} = \frac{7 + 9 \times 13}{7 + 4 \times 13} = \frac{118}{61} = \frac{19}{10}$$

$$\frac{9}{r}(a_1 + a_9) = 9 \times \frac{19}{10} \times (a_1 + a_r) \rightarrow \frac{9}{r}a_1 + \frac{9}{r}a_9 = \frac{19}{10}a_1 + \frac{19}{10}a_r$$

$$\frac{1}{r}(a_1 + 11d) - \frac{19}{10}(a_1 + 2d) = a_1$$

$$\frac{9}{r}a_9 - \frac{19}{10}a_r = 9a_1$$

$$\frac{1}{r}a_1 + d - \frac{19}{10}a_1 - 2d = a_1 \rightarrow 2a_1 = d \rightarrow a_1 = \frac{d}{2}$$

$$\frac{1}{r}a_9 - \frac{19}{10}a_r = a_1$$

$$t_1 = 11$$

$$t_v = 20 \rightarrow 11 + 9d = 20 \rightarrow 9d = 9 \rightarrow d = 1 \rightarrow t_r = t_1 + 9d = 20$$

$$b_1 = 21 \quad b_n = 13$$

$$b_r = t_r \rightarrow b_r = 20 \rightarrow b_1 + 9d = 20 \rightarrow 21 + 9d = 20 \rightarrow 9d = -1 \rightarrow d = -\frac{1}{9}$$

$$d = \frac{b_n - b_1}{n+1} \rightarrow -\frac{1}{9} = \frac{13 - 21}{n+1} \rightarrow -\frac{1}{9} = \frac{-8}{n+1} \rightarrow n+1 = 8 \rightarrow n = 7$$

جواب: 7