

$$a_n = n^2 + \frac{n(n-1)}{2}$$

$$a_{10} = 10^2 + \frac{10 \times 9}{2} = 145 \checkmark$$

(۲)

$$a_n = \text{تعداد شلوات رنگی} = \frac{n(n-1)}{2} \checkmark$$

$$a_n = \frac{n(n-1)}{2} = 55 \Rightarrow n(n-1) = 55 \times 2 = 110$$

$$\Rightarrow n = 11 \checkmark \quad a_{11} = 55 \sim$$

(۲)

$$a_n = \text{تعداد میوه رنگی} = 1 + 4n$$

$$a_{11} = 1 + 4 \times 11 = 45 \checkmark$$

(۲)

$$+n = \text{تعداد کل میوه ها} = 1 + 4n + 4(n-1) = 8n - 3$$

$$+_{11} = 8 \times 11 - 3 = 85 \checkmark$$

$$[45 + 85 = 130]$$

$$a_n = -1, \frac{1}{2}, -\frac{1}{3}, \frac{1}{4}, \dots = \frac{(-1)^n}{n}$$

زیرا n باید زوج باشد تا مثبت شود $\rightarrow \frac{1}{2}$ بزرگترین جمله دنباله
و چون در منهای هم هست باید کوچک باشد $\rightarrow -1$ کوچکترین جمله دنباله
زیرا n باید فرد و کوچک باشد

(۲)

$$\frac{1}{2} - (-1) = \frac{3}{2} = 1.5 \checkmark$$

$$b_n = (-3)^n - 7n$$

$$a_n = -5n + 22 \checkmark$$

(۲)

$$b_k = a_k \Rightarrow (-3)^3 - 7 \times 3 = -27 - 21 = -48 = -5k + 22$$

$$\Rightarrow 5k = 48 + 22 = 70 \Rightarrow k = \frac{70}{5} = 14 \checkmark$$

$$t_{10} - t_V = 14$$

$$\downarrow t_n = an + b$$

$$10a + b - (Va + b) = 14 \Rightarrow a = 4$$

$$t_4 - t_1 = 4a + b - (a + b) = 3a = 12 \Rightarrow a = 4$$

$$a_V = 4a + b = V$$

$$a_4 = 4a + b = 10$$

$$b_1 = a + b = 4$$

$$b_V = 4a + b = 11$$

$$4a = 1 \Rightarrow a = \frac{1}{4} \Rightarrow b = -1$$

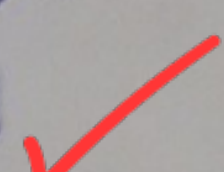
$$a = 1$$

$$\downarrow b = -a$$

$$a_n = f_{n-1}$$

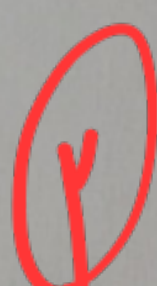
$$a_1 = f_{1-1} = f_0 = 1, a_2 = f_{2-1} = f_1 = 1 \Rightarrow b_1 = 4, b_V = 11$$

$$b_n = 1n - 1$$



$$t_n = \frac{f_{n-1}}{Vn+W}, t_n < \frac{W}{V} \Rightarrow \frac{f_{n-1}}{Vn+W} < \frac{W}{V} \Rightarrow f_{n-1} < Wn + V$$

$$\Rightarrow Vn < 14 \Rightarrow n < 4 \Rightarrow n = 1, 2, 3, 4$$



t_n عدد کوچکی از $\frac{W}{V}$ دارد

$$t_n = 4, 9, A, 4, 0, \dots = An^V + Bn \Rightarrow C = 0$$

$$\begin{matrix} \uparrow & \uparrow & \uparrow & \uparrow \\ +4 & +9 & -4 & -0 \end{matrix}$$

$$\begin{matrix} \uparrow & \uparrow & \uparrow \\ -4 & -9 & -4 \end{matrix}$$

$$A = \frac{-W}{V} = -1 \Rightarrow A = \frac{d}{V}$$



$$\Rightarrow t_n = -1 \cdot d n^V + Bn \xrightarrow{n=1} -1 \cdot d \times 1^V + B \times 1 = 4 \Rightarrow B = V \cdot d$$

$$t_n = -1 \cdot d n^V + V \cdot d n$$

$$V \cdot A + dB = 4 \times (-1 \cdot d) + d \times V \cdot d = 4$$



$$t_n = -4, -9, 0, \dots$$

$$\begin{matrix} \uparrow & \uparrow & \uparrow \\ -4 & -9 & +0 \end{matrix}$$

$$\begin{matrix} \uparrow & \uparrow & \uparrow \\ +4 & +9 & +4 \end{matrix} \Rightarrow a = \frac{V}{V} = 1, C = -4$$

$$t_1 = 1 \times 1^V + b \times 1 - 4 = -4 \Rightarrow b = -1$$

$$t_n = n^V - n - 4$$

$$t_n = a_n \Rightarrow n^V - n - 4 = d n + V \Rightarrow n^V - 4n = 4V \Rightarrow n = 9$$



$$a_n = an + b$$

$$a_V = 4a + b = 4$$

$$a_4 = 4a + b = 9$$

$$4a = 5 \Rightarrow a = \frac{5}{4}$$

$$a_V = 4 \times \frac{5}{4} + b = 4 \Rightarrow b = -1$$

$$a_n = \frac{5}{4}n + \frac{1}{4}$$

$$n = 9$$