

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

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

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

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

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

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

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

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

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

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

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 $\rightarrow -1$ = کوچکترین جمله دنباله

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

$$b_n = (-3)^n - 7n \quad a_n = -5n + 22$$

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

$$\Rightarrow 5k = 41 + 22 = 63 \Rightarrow k = \frac{63}{5} = 12.6$$

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

$$\downarrow t_n = an + b$$

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

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

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$$a_V = 4a + b = 14$$

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

$$b_1 = a + b = 14$$

$$b_V = 4a + b = 10$$

$$4a = 14 \Rightarrow a = 4 \Rightarrow b = -10$$

$$a = 1$$

$$\downarrow b = -a$$

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

$$a_1 = f_{1-1} = f_0 = 1, a_n = f_{n-1} = 1 \Rightarrow b_1 = 1, b_V = 1$$

$$b_n = 1 \cdot n - 1$$

$$t_n = \frac{f_{n-1}}{V_{n+1}}, t_n < \frac{1}{V} \Rightarrow \frac{f_{n-1}}{V_{n+1}} < \frac{1}{V} \Rightarrow f_{n+1} > 1 \cdot n - 1$$

$$\Rightarrow Vn < 14 \Rightarrow n < 4.1 \Rightarrow n = 1, 2, 3, 4, 5, 6$$

$$t_n \text{ عدد کو چینی از } \frac{1}{V} \text{ دارد}$$

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$$t_n = 4, 9, 16, 25, \dots = An^2 + Bn \Rightarrow C = 0$$

$$\begin{matrix} \uparrow & \uparrow & \uparrow & \uparrow \\ +4 & +9 & +16 & +25 \end{matrix}$$

$$\begin{matrix} \uparrow & \uparrow & \uparrow \\ -4 & -9 & -16 \end{matrix} \Rightarrow A = \frac{-1}{2} = -0.5 \Rightarrow A = \frac{d}{2}$$

$$\Rightarrow t_n = -0.5n^2 + Bn \xrightarrow{n=1} -0.5 \times 1^2 + B \times 1 = 4 \Rightarrow B = 4.5$$

$$t_n = -0.5n^2 + 4.5n$$

$$4A + 9B = 4 \times (-0.5) + 9 \times 4.5 = 40$$

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$$t_n = -4, -9, -16, \dots$$

$$\begin{matrix} \uparrow & \uparrow & \uparrow \\ -4 & -9 & -16 \end{matrix}$$

$$\begin{matrix} \uparrow \\ +4 \end{matrix} \Rightarrow a = \frac{1}{2} = 1, c = -4$$

$$t_1 = 1 \times 1^2 + b \times 1 - 4 = -4 \Rightarrow b = -1$$

$$t_n = n^2 - n - 4$$

$$t_n = a_n \Rightarrow n^2 - n - 4 = 0 \Rightarrow n^2 - 4n = 0 \Rightarrow n = 4$$

$$a_n = an + b$$

$$a_V = 4a + b = 14$$

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

$$4a = 10 \Rightarrow a = 2.5$$

$$a_V = 4 \times 2.5 + b = 14 \Rightarrow b = 1$$

$$a_n = 2.5n + 1$$

1.