

$$t_n = an + b \text{ جبراً}$$

$$\frac{10a + b - (4a + b)}{10 - 4} = 12 \Rightarrow 6a = 12 \Rightarrow \boxed{a = 2}$$

$$t_4 - t_1 = 4a + b - (a + b) = 3a \xrightarrow{a=2} 3 \times 2 = \boxed{6}$$

(2)

$$t_n = an + b \text{ جبراً}$$

$$\left. \begin{aligned} (4a + b) \times 1 \\ 4a + b = 10 \end{aligned} \right\} \Rightarrow 4a = 1 \Rightarrow \boxed{a = \frac{1}{4}}$$

$$\xrightarrow{a=\frac{1}{4}} 4 \times \frac{1}{4} + b = 10 \Rightarrow b = 9$$

(1, 9)

$$\begin{aligned} t_1 &= 1 - 1 = 0 \quad t_2 = 2(1) - 1 = 1 \\ b_1 &= 0 \quad b_2 = 1 \end{aligned} \Rightarrow b_n = n - 1 \Rightarrow \boxed{b_n = n - 1}$$

$$t_n = \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \dots \rightarrow t_n = \frac{n-1}{2}$$

$$n < \frac{10}{2}$$

$$\frac{n-1}{2} < \frac{10}{2} \Rightarrow n-1 < 10 \Rightarrow n < 11 \Rightarrow n < \frac{11}{2} = 5.5$$

$$\rightarrow n = 1, 2, 3, 4, 5$$

$$\begin{aligned} n=1 &\Rightarrow A+B=4 \\ n=2 &\Rightarrow 2A+2B=4 \end{aligned} \Rightarrow \left. \begin{aligned} 2A &= -4 \Rightarrow A = -2 \\ B &= 6 \end{aligned} \right\}$$

$$2A + 0B = 2(-2) + 0(6) = -4 \neq 4$$

$$\frac{10-4}{2} \rightarrow \boxed{a=3} \Rightarrow b = 10 - 3 = \boxed{7}$$

$$b_n = an + b \Rightarrow \boxed{3n + 7 = t_n}$$

راه حل های صحیح نوشته شد

(1)

$$t_1, t_2, t_3, t_4, \dots$$

$$1, 4, 9, 16, 25, \dots$$

$$1, 4, 9, 16, 25, \dots \rightarrow 1, 4, 9, 16, 25, \dots \rightarrow n^2$$

$$n^2 + \frac{n(n-1)}{2} \Rightarrow 10^2 + \frac{10(10-1)}{2} = 100 + 45 = 145$$

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$$t_1, t_2, t_3, t_4, \dots$$

$$0, 1, 3, 6, 10, \dots$$

$$\frac{n(n-1)}{2}$$

$$\frac{n(n-1)}{2} = 55 \Rightarrow n(n-1) = 110 \Rightarrow n = 11$$

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$$\begin{cases} \text{هر روز سفید} \Rightarrow f(n-1) \\ \text{هر روز قرمز} \Rightarrow 5 + f(n-1) \end{cases}$$

$$5 + 8(n-1) \rightarrow 5 + 8(11-1) = 85$$

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صورت سوال را با دقت بخوان!

$a_{11} + b_{11} = 15 + 28 = 43$

$$\begin{cases} \text{بزرگترین جمله} \Rightarrow n=2 \Rightarrow \frac{1}{2} \\ \text{کوچکترین جمله} \Rightarrow n=1 \Rightarrow -1 \end{cases}$$

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

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$$n=3 \rightarrow (-3)^3 - (21) = -27 - 21 = -48 \rightarrow -48 = -5n + 27$$

$$5n = 75 \rightarrow n = \frac{75}{5} = 15 \Rightarrow K = 15$$

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$-4, -2, 0, \dots$

$$\begin{array}{cc} \uparrow & \uparrow \\ +2 & +2 \end{array}$$

$$\begin{array}{c} \uparrow \\ +2 \end{array} \rightarrow 2a < 2 \rightarrow a < 1$$

سوال ۱۰

$$t_n = an^2 + bn + c \rightarrow \begin{cases} t_1 = a + b + c = -4 \\ t_2 = 4 + 2b + c = -2 \end{cases} \rightarrow \begin{matrix} b = -1 \\ c = -3 \end{matrix} \rightarrow b_n = n^2 - n - 4$$

$$b_n = An + B \rightarrow \begin{cases} b_1 = 2A + B = 3 \\ b_2 = 3A + B = 1 \end{cases} \rightarrow \begin{matrix} A = 2 \\ B = -1 \end{matrix} \rightarrow b_n = 2n - 1$$

$$2n^2 - n - 9 < 2n - 1 \rightarrow n^2 - 4n - 4 < 0 \rightarrow n < 9 \checkmark$$

$\hookrightarrow n = -5 \times$