

$$t_n = \frac{2}{0}, \frac{4}{1}, \frac{10}{4}, \frac{14}{11}, \dots$$

⑧ چند جمله‌نویس را بنویسید

$$\frac{4n-2}{2n+3} < \frac{3}{2} \quad 4n-2 < 4n+9$$

$$2n < 11$$

$$n < 4/10$$

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

⑨ $3A + 5B = 8$

$$t_n = An^2 + Bn \rightarrow t_1 = A + B = 4 \rightarrow A + (-5A) = 4 \rightarrow -4A = 4$$

$$t_4 = 14A + 5B = 4$$

$$A = -\frac{1}{4}$$

$$A + B = 14A + 5B$$

$$-4B = 13A$$

$$B = -\frac{13}{4}A$$

$$-\frac{1}{4} + B = 4 \rightarrow B = \frac{17}{4}$$

$$3A + 5B = 3 \times -\frac{1}{4} + 5 \times \frac{17}{4} = -\frac{3}{4} + \frac{85}{4} = \frac{82}{4} = \frac{41}{2}$$

$$= 20.5$$

$$t_n = -4, -4, 10, \dots$$

$$a_1 = 31$$

$$a_4 = 10$$

$$d = 1$$

$$an^2 + bn + c \rightarrow n^2 - n - 4$$

$$\frac{dn+c}{\text{الگوی}} \rightarrow \frac{10}{4} + c = 31$$

$$c = 2$$

$$a_n = 2n + 21$$

$$2a = 2$$

$$a = 1$$

$$c = -4$$

$$b \Rightarrow x + b - 4 = -4$$

$$b = -1$$

$$n^2 - n - 4 = 2n + 21$$

$$n^2 - 3n = 25$$

$$n(n-3) = 25$$

$$4 \times 3 \rightarrow n = 9$$

$$9 \times 9 - 9 = 81 - 9 = 72$$

$$9 \times 9 + 21 = 81 + 21 = 102$$

در جمله نهم می‌کنند ← و مساوی

①

$$n^2 + \frac{n(n-1)}{2} = 1 + \frac{1 \times 9}{2} = 1 + 4.5 = 5.5 = \boxed{11}$$

$$1^2 + 0 = 1 \checkmark$$

$$4 + 1 = 5 \checkmark$$

$$9 + 3 = 12 \checkmark$$

شماره 0, 1, 3

1, 4, 9 $\rightarrow n^2$

1, 3, 6 $\rightarrow \frac{n(n+1)}{2}$

$$\frac{2n^2 - n(n+1)}{2} = 0 \rightarrow 2n^2 - n^2 - n = 11$$

$$n^2 - n = 11$$

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

$$\boxed{n=11}$$

② شکل جدول 55 ستون دارد

③

$$\text{شماره} = ①$$

$$② \quad ③$$

$$9 \quad 13 \rightarrow 4n+1 \rightarrow (4 \times 11)+1 = \boxed{45}$$

$$4 \quad 1 \rightarrow 4n-4 \rightarrow 44-4 = 40$$

$$13 \quad 21 \rightarrow 12n-3 \rightarrow 132-3 = \boxed{129}$$

$$\text{کوچکترین} = \frac{(-1)^1}{1} = -1 \quad \text{بزرگترین} = \frac{(-1)^2}{2} = \frac{1}{2} \quad \text{میانگین} = \frac{1}{2} - (-1) = \boxed{1\frac{1}{2}}$$

④

⑤

$$b_n = (-3)^n - v_n \xrightarrow{n=2} 27 - 21 = -6$$

$$a_n = -5n + 22 \xrightarrow{n=k} -5k + 22 = -6 \quad -5k = -28 \rightarrow \boxed{k=14}$$

⑥

$$a_1 - a_2 = 12$$

$$2d = 12$$

$$\boxed{d=6}$$

$$a_9 = a_1 + 8d$$

$$a_9 - a_1 = 8$$

$$\rightarrow a_1 + 8d - a_1 = 8d = 8 \times 6 = \boxed{48}$$

⑦

$$a_n = dn + C \rightarrow a_2 = 7, a_5 = 10 \rightarrow \begin{cases} 2d + C = 7 \\ 5d + C = 10 \end{cases} \rightarrow \begin{cases} d=1 \\ C=5 \end{cases}$$

$$\begin{cases} a_1 = b_1 \\ a_2 = b_2 \end{cases} \rightarrow b_n = dn + b$$

$$a_n = 1n + (-1) = n - 1$$

$$b_1 = 1 \times 1 - 1 = 0 \quad \boxed{d=1}$$

$$b_2 = 1 \times 2 - 1 = 1$$

$$\begin{cases} 1 \times 1 + b = 0 \\ b = -1 \end{cases}$$

$$1 \times 2 - 1 = 1$$

$$\boxed{b_n = 1n - 1}$$