

1	2	12	22
1	4+1	9+3	16+6
(1)	(2)	(3)	(4)

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

$$100 + \frac{10(9)}{2} = 145 \quad \checkmark$$

(۲)

0	1	3
(1)	(2)	(3)

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

$$\frac{n(n-1)}{2} = 24$$

(۲)

$$n(n-1) = 48$$

$$n = 11 \quad \checkmark$$

2	12	21
(1)	(2)	(3)

$$d = 1$$

$$t_{11} = a_1 + 10d$$

$$t_{11} = 2 + 10 = 12 \quad \checkmark$$

تعداد کلمات در جمله

2	9	12
(1)	(2)	(3)

$$d = 7$$

$$t_{11} = a_1 + 10d$$

$$2 + 70 = 72$$

$$t_{11} = 72 \quad \checkmark$$

تعداد کلمات در جمله
باز در هم

(۲)

$$n=1 \rightarrow a_1 = \frac{1}{1}$$

$$n=2 \rightarrow a_2 = \frac{1}{4}$$

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

(۲)

$$-1 + \frac{1}{4} = -\frac{3}{4} \quad \checkmark$$

$$b_k = (-1)^k - 21 = -27 - 21 = -48$$

$$a_k = b_k \rightarrow -48 = -2k + 22$$

$$-70 = -2k$$

$$k = 35 \quad \checkmark$$

(۲)

$$t_{10} - t_9 = 12$$

$$t_9 - t_8 = 11$$

$$t_8 - t_7 = 10$$

$$t_7 - t_6 = 9$$

✓

$$a_1 - a_2 = 1$$

$$b_n \rightarrow \begin{matrix} 1 & 2 & 3 \\ (1) & (2) & (3) \end{matrix}$$

$$r = a + b$$

$$11 = r + b$$

$$a = 1 \leftarrow b = -1$$

$$b_n = An - 1$$

$$\frac{1}{2} < \frac{1}{3} < \frac{1}{4} < \frac{1}{5}$$

$$\frac{r(r-1)}{r+1} < \frac{r}{r}$$

$$r-1 < r+1$$

$$n < 2$$

$$1 < r < r+1 < 2$$

✓

$$t_n = An^2 + Bn + C$$

$$C = 0$$

$$0 < 1 < 4 < 9 < 16 < 25$$

$$A = -1/2$$

$$t_1 = 1/2 + B = 1$$

$$B = 1/2$$

$$r(-1/2) + 1/2 = -r/2 + 1/2 = r/2$$

$$t_n = -1/2 n^2 + 1/2 n$$

$$C = -1$$

$$a = 1$$

$$t_n = an^2 + bn + c$$

$$t_1 = 1 + b - 1 = -1$$

$$b = -1$$

$$\begin{aligned} r1 &= ra + b \\ r1 &= ra + b \\ 10 &= ra \\ a &= a \\ b &= r1 \end{aligned}$$

$$\begin{aligned} an + r1 &= n^2 - n - 1 \\ r1 &= n^2 - 2n \\ r1 &= n(n-2) \\ n &= 3 \end{aligned}$$