

بارها سماعی دهم بر A تکلیف ۱۱

$$a_n = 1, 3, 11, 27, \dots$$

$$0+1, 1+3, 3+11, 11+27, \dots$$

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

$$a_2 = \frac{2 \times 1}{2} + 1 = 2$$

①

$$0, 1, 3, \dots$$

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

$$a_2 = \frac{2(2-1)}{2}$$

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

②

③

$$a_n = 5, 13, 21, \dots$$

$$a_n = 11n - 3 \Rightarrow \text{کل مرتبه} = 11$$

$$a_{11} = 11 \times 11 - 3 = 118$$

④

$$b_n = 5, 9, 13, \dots$$

$$b_n = 4n + 1 \Rightarrow \text{کل مرتبه} = 4$$

1, 1, 5

$$a_1 = \frac{-1}{1} = -1 \Rightarrow \text{بزرگترین}$$

$$a_2 = \frac{1}{2} \Rightarrow \text{بزرگترین}$$

$$a_2 - a_1 = \frac{1}{2} - (-1) = \frac{3}{2}$$

هر چه توان بیشتر می شود به 0 نزدیک می شود

1, 1, 5

$$b_n = (-1)^n - 2n \Rightarrow -2V - 21 = -41$$

$$a_n = -2n + 21$$

$$-2n + 21 = -41$$

$$V_0 = 2n$$

$$n = 11$$

②

⑤

$$a_{10} - a_9 = 12$$

$$a_{10} = a_9 + 2d \rightarrow 2d = 12 \Rightarrow d = 6$$

$$a_9 - a_8 = ?$$

$$a_9 - a_8 = a_8 + 2d - a_8 = 2d = 12$$

②

⑥

$$a_2 = v = a + d$$

$$a_1 = b_1$$

$$b_n = ?$$

$$b_2 = 11, b_2 = b_1 + d \Rightarrow 11 = 1 + d \Rightarrow d = 10$$

$$a_2 = 10 = a + d$$

$$\frac{10 - d}{1} = \frac{10 - 10}{1} = 0$$

$$\frac{d}{a} = \frac{10}{0}$$

$$a_n = b_n$$

$$a_2 = a + 2d = 1 + 10 = 11$$

$$d = 10 = b_2 - b_1$$

$$b_n = 11n - 10$$

②

⑦

$$t_n = \frac{r}{5} > \frac{q}{4} > \frac{10}{9} > \frac{14}{11} > \dots$$

$$t_n = \frac{4n-2}{2n+3}$$

$$\frac{4n-2}{2n+3} < \frac{r}{5}$$

$$r(4n-2) < 5(2n+3)$$

$$11n - 4 < 10n + 15$$

$$2n < 19$$

$$n < 9.5$$

②

$n = 9, 8, 7, 6, 5, 4, 3, 2, 1$
ن عدد طبیعی پس $\frac{9}{5}$ عدد

⑧

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

$$t_n = An^2 + Bn$$

$$\begin{cases} a_1 = 4 = A + B \\ a_2 = 9 = 4A + 2B \end{cases}$$

$$\begin{cases} 12 = 3A + 2B \\ 9 = 4A + 2B \end{cases}$$

$$-3 = 2A$$

$$A = -1.5$$

$$B = 7.5$$

$$3 \times (-1.5) + 7.5 \times 1 = -4.5 + 7.5 = 3$$

②

⑨

$$t_n = -4, -4, 0, \dots \rightarrow t_n = n^2 - n - 4$$

$$a_r = 41, a_r = 41 \rightarrow a_r = a_1 + (r-1)d \Rightarrow 41 = 1 + (r-1)d \rightarrow d = 10$$

$$a + d \rightarrow a = 31 \rightarrow a_n = 10n + 21$$

②

$$10n + 21 = n^2 - n - 4 \rightarrow n^2 - 11n - 25 = 0 \rightarrow (n-9)(n+14) = 0$$

$$n = 9$$

$$a_9 = 10 \times 9 + 21 = 99$$