

$$0, 0, 0, 0, 0, \dots \rightarrow 0, 0, 0, 0, 0, \dots + x, \dots \rightarrow t_n = 1 + \frac{n(n-1)}{2} \Rightarrow t_1 = 1 + 4\Delta = 1 + 4\Delta$$

$$0, 0, 0, 0, 0, \dots$$

$$t_n = an^2 + bn + c = \frac{1}{4}n^2 + bn \Rightarrow t_1 = \frac{1}{4} + b = 0 \Rightarrow b = -\frac{1}{4}$$

$$\Rightarrow t_n = \frac{1}{4}n^2 - \frac{1}{4}n \Rightarrow \Delta = \frac{1}{4}n^2 - \frac{1}{4}n \Rightarrow n = 11$$

$$0, 0, 0, 0, 0, \dots$$

$$0, 0, 0, 0, 0, \dots$$

$$t_n = 11n - 3 \Rightarrow t_{11} = 11(11) - 3 = 118 - 3 = 115$$

$$t_n = 11n + 1 \Rightarrow t_{11} = 11(11) + 1 = 121 + 1 = 122$$

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

$$\rightarrow \text{کوتاه‌ترین: } \frac{(-1)^n}{n} \xrightarrow{n=1} \frac{(-1)^1}{1} = -1$$

$$\rightarrow \text{بزرگ‌ترین: } \frac{(-1)^n}{n} \xrightarrow{n=2} \frac{(-1)^2}{2} = \frac{1}{2}$$

$$b_n = a_k \Rightarrow (-2)^2 - v(2) = -\Delta k + 22 \Rightarrow -2v - 21 = -\Delta k + 22 \Rightarrow -4\Delta - 22 = -\Delta k$$

$$\Rightarrow -4\Delta = -\Delta k \Rightarrow \frac{4\Delta}{\Delta} = k \Rightarrow k = 4$$

$$K = \frac{v}{\Delta} = 14$$

$$t_n = an + c$$

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$$|t_v - t_o| = 1\tau \Rightarrow |a\tau v + C - (a\tau o + C)| = 1\tau \Rightarrow |a\tau v + C - a\tau o - C| = 1\tau \Rightarrow |-\tau a| = 1\tau \Rightarrow \tau a = \pm 1\tau \Rightarrow a = \pm 1$$

$$|t_g - t_i| = |\pm \tau f + C - (\pm \tau f + C)| = |\pm \tau f + C \pm \tau f - C| = |\pm \tau f \pm \tau f| \begin{cases} + & |\tau f + \tau f| = 2\tau f \\ - & |-\tau f - \tau f| = 2\tau f \end{cases} \quad \alpha = f$$

$$t_9 = 9a + b$$

$$t_1 = a + b$$

$$t_4 - t_1 = \Delta a = \boxed{1.}$$

$$d = \frac{t_m - t_n}{m - n} = \frac{1d - V}{r - r} = \frac{\Lambda}{r} = r \rightarrow t_r = r(r) + c = V \Rightarrow \Lambda + c = V \Rightarrow c = -1$$

⑦

$$\left. \begin{aligned} t_r &= f(r) - 1 = 11 = b_1 \\ t_1 &= f(1) - 1 = r = b_1 \end{aligned} \right\} \Rightarrow d = \frac{11-r}{r-1} = \frac{1}{1} = 1 \Rightarrow b_n = 1n + C \rightarrow b_1 = 1(1) + C = r \Rightarrow 1 + C = r$$

$$\Rightarrow C = -d \Rightarrow b_n = \Lambda_{n-d} \rightarrow 3, 11, 19, 27, \dots$$

$$t_h = \frac{r}{\omega} \xrightarrow{r} \frac{r}{v} \xrightarrow{L_0} \frac{r}{v} \xrightarrow{L_1} \dots \rightarrow t_h = \frac{r_n - r}{r_n + r}$$

$$\frac{r_{n-1}}{r_{n+1}} < \frac{r}{r} \Rightarrow 1, n-1 < r_{n+1} \Rightarrow r_{n+1} < 1r \Rightarrow n < 4/2 \Rightarrow n: \{1, 2, 3, 4, 5\} \rightarrow \boxed{4, 5}$$

⑦

1 2 3 4 5

9, 9, 9, 9, 10, ...

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+2 0 -2 -4

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-2 -2 -2

$$\left. \begin{aligned} Y_a = -r \Rightarrow a = -1/\omega \Rightarrow t_n = -1/\omega n^r + bn + c \\ t_n = A n^r + Bn \end{aligned} \right\} \Rightarrow \underline{A = -1/\omega} \Rightarrow t_1 = -1/\omega(1)^r + B = 9 \Rightarrow B - 1/\omega = 9$$

$$\Rightarrow \vec{r} \cdot \vec{A} + \omega B = \vec{r} \cdot (-\vec{v}/\omega) + \omega (v/\omega) = -\vec{r} \cdot \vec{v}/\omega + \vec{r} \cdot \vec{v} = \boxed{r^2} \quad \checkmark$$

⑤

$$\begin{array}{ccccccc} & 0 & & 1 & & 2 & & 3 \\ - & 5 & 6 & - & 7 & 6 & 0 & \dots \end{array}$$

$$r_n = r \Rightarrow a = 1, C = -9 \Rightarrow t_1 = -9 = +1(1)^1 + b(12-9) \Rightarrow -9 = +1 + b - 9 \Rightarrow b = 1 \Rightarrow t_n = +n^1 - n - 9$$

$$d' = \frac{t'_n - t'_n}{m-n} = \frac{f-1}{f-1} = \frac{1}{1} = 1 \Rightarrow t'_r = r-1 = d(r-1) + c' = 1 + c' \Rightarrow c' = r-1 \Rightarrow t'_n = d(n+r-1)$$

$$t'_h = t_h \Rightarrow t_h - n - \gamma = \omega n + \gamma \Rightarrow t_h - \gamma n - \gamma V = 0 \xrightarrow{\text{to min}} -\gamma \cdot 9 \xrightarrow{n \neq 0} 9$$

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