

1

२

三

५

△

△

△

△

$$a_1 - a_2 = 12 \quad \begin{matrix} 12 < 12 \\ d = 6 \end{matrix}$$

$$a_{110} - a_1 = \boxed{00d \leq 2.}$$

6

$$\begin{matrix} a_r = 1 \\ a_f = 10 \end{matrix} \Rightarrow d = \frac{10-1}{f-r} = 9 \Rightarrow \begin{cases} a_1 = a_r \cdot d = 9 \\ a_r = a_f \cdot d = 11 \end{cases}$$

$$b_n: \begin{matrix} 11 \\ \times \\ \hline b_n = 11n - 11 \end{matrix}$$

7

$$t_n: \frac{5}{8}, \frac{5}{6}, \frac{1}{4}, \frac{1}{11}$$

$$t_n = \frac{5n-1}{n+12}$$

در هر دو طرف از $\frac{1}{x}$ ضرب می‌کنیم

$$\frac{5n-1}{n+12} < \frac{1}{p} \Rightarrow 1(n-1) < 1(n+12) \Rightarrow 1n-1 < 1n+12 \Rightarrow n < 13 \Rightarrow \frac{5}{8}, \frac{5}{6}, \frac{1}{4}, \frac{1}{11} < \frac{1}{p}$$

$$t_n: \begin{matrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 & 12 \\ \times & \times & \times & \times & \times & \times & \times & \times & \times & \times & \times & \times \\ \hline t_n = -\frac{1}{2}n^2 + \frac{1}{2}n + 1 \end{matrix}$$

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

$$t_1 = 1 = -\frac{1}{2} + \frac{1}{2} + 1 = 1$$

$$t_n = -\frac{1}{2}n^2 + \frac{1}{2}n + 1 \Rightarrow 1A + 1B = -\frac{1}{2} + \frac{1}{2} = \boxed{1}$$

9

$$t_n: \begin{matrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 & 12 \\ \times & \times & \times & \times & \times & \times & \times & \times & \times & \times & \times & \times \\ \hline t_n = n^2 + 1 \end{matrix}$$

$$t_n = n^2 + 1$$

$$-1 = 1 + 1 \Rightarrow \boxed{b = -1}$$

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

$$\begin{matrix} b_r = 11 \\ b_f = 11 \end{matrix} \Rightarrow d = 11 \Rightarrow \begin{cases} a_1 = a_r \cdot d = 121 \\ a_r = a_f \cdot d = 121 \end{cases}$$

$$b_n = 11n + 11$$

$$11n + 11 = n^2 - n + 1$$

$$-n^2 + 12n + 10 = 0$$

$$-(n^2 - 12n - 10) = 0$$

$$-(n-9)(n+1) = 0$$

$$\begin{matrix} n = -1 \\ n = 9 \end{matrix}$$

نمی‌تواند منفی باشد

10