

$$t_n = an + b \text{ جبراً}$$

$$\frac{10a + b - (4a + b)}{t_{10} - t_4} = 12 \Rightarrow 6a = 12 \Rightarrow \boxed{a = 2}$$

$$t_4 - t_1 = 4a + b - (a + b) = 3a \xrightarrow{a=2} 3 \times 2 = \boxed{6}$$

$$t_n = an + b \text{ جبراً}$$

$$\left. \begin{array}{l} (4a + b = 10) \\ (a + b = 10) \end{array} \right\} \Rightarrow 3a = 0 \Rightarrow \boxed{a = 0}$$

$$\xrightarrow{a=0} 4a + b = 10 \Rightarrow \boxed{b = 10}$$

$$\frac{t_1}{1} = 10 - 1 = 9 \quad \frac{t_2}{2} = 10 - 2 = 8 \quad \frac{t_3}{3} = 10 - 3 = 7 \quad \dots \rightarrow bn \Rightarrow a = 1, b = 9 \Rightarrow \boxed{1n + 9 = bn}$$

$$\rightarrow \boxed{bn = 1n + 9} \text{ جواب}$$

$$t_n = \frac{r}{a} + \frac{r}{a} + \frac{r}{a} + \frac{r}{a} + \dots \rightarrow t_n = \frac{rn - r}{n + r}$$

$$n < \frac{r}{r}$$

$$\frac{rn - r}{n + r} < \frac{r}{r} \quad 1n - 1 < 4n + 4 \Rightarrow rn < 12 \Rightarrow n < \frac{12}{r} = 4, 2$$

$$\rightarrow n = 1, 2, 3, 4, 5$$

$$\left. \begin{array}{l} n=1 \Rightarrow (A+B=9) \\ n=2 \Rightarrow (2A+2B=9) \end{array} \right\} \Rightarrow \left. \begin{array}{l} 1A = -2 \Rightarrow A = -\frac{r}{r} = -1, \Delta = A \\ 2B = 11 \Rightarrow B = 5, 0 \end{array} \right\}$$

$$1A + 0B = 1(-1) + 0(5) = -1, \Delta = -1, \Delta = \boxed{12}$$

$$\frac{10 - r}{r} \rightarrow \boxed{a = 9} \Rightarrow b = 1 - a = \boxed{12 = b}$$

$$bn = an + b \Rightarrow \boxed{an + 12 = t_n}$$

$$t_1, t_2, t_3, t_4, \dots$$

$$1, 4, 9, 16, 25, \dots$$

$$1, 4, 9, 16 \rightarrow n^2$$

$$1, 3, 5, \dots \rightarrow \frac{n(n-1)}{2}$$

$$n^2 + \frac{n(n-1)}{2} \Rightarrow 10^2 + \frac{10(10-1)}{2} = 100 + 45 = 145$$

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$$t_1, t_2, t_3, t_4, \dots$$

$$0, 1, 3, 6, 10, \dots$$

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

$$\hookrightarrow \frac{n(n-1)}{2} = 55 \Rightarrow n(n-1) = 110 \Rightarrow n = 11$$

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$$\begin{cases} \text{مردی سفید} \Rightarrow f(n-1) \\ \text{مردی تیره} \Rightarrow 5 + f(n-1) \end{cases} \quad 5 + 8(n-1) \rightarrow 5 + 8(11-1) = 85$$

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$$\begin{cases} \text{بزرگترین جمله} \Rightarrow n=2 \Rightarrow \frac{1}{2} \\ \text{کوچکترین جمله} \Rightarrow n=1 \Rightarrow -1 \end{cases} \quad \frac{1}{2} - (-1) = \frac{3}{2}$$

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$$n=3 \rightarrow (-3)^3 - (21) = -27 - 21 = -48 \rightarrow -48 = -5n + 27$$

$$\hookrightarrow 5n = 75 \rightarrow n = \frac{75}{5} = 15 \Rightarrow K = 15$$

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