

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

$$t_{10} = 10^2 + \frac{10 \cdot 9}{2} = 100 + 45 = \underline{\underline{145}}$$

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$$t_n(1) = n^2$$

$$t_n(\text{سفر}) = \frac{n(n+1)}{2}$$

$$\Rightarrow t_n(50) = n^2 - \frac{n(n+1)}{2} \Rightarrow 50^2 - \frac{50(51)}{2} = 2500 - 1275 = \underline{\underline{1225}}$$

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$$\left. \begin{array}{l} \text{مرد زنی} \rightarrow t_n = \varepsilon n + 1 \rightarrow t_{11} = \varepsilon \varepsilon + 1 = \boxed{\varepsilon \varepsilon} \\ \text{مرد سفید} \rightarrow t_n = \varepsilon(n-1) \rightarrow t_{11} = \varepsilon \varepsilon - \varepsilon = \boxed{\varepsilon \varepsilon - \varepsilon} \end{array} \right\} \Rightarrow \varepsilon \varepsilon + \varepsilon \varepsilon - \varepsilon = \underline{\underline{185}}$$

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$$\text{بزرگترین} \rightarrow t_n = \boxed{\frac{1}{2}}$$

$$\text{کوچکترین} \rightarrow t_n = \boxed{-1}$$

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

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$$b_n = (-3)^n - 7n$$

$$b_3 = (-3)^3 - 7(3) = -27 - 21 = \boxed{-48}$$

$$a_n = -5n + 22$$

$$a_k \Rightarrow -5n + 22 = -48 \Rightarrow -5n = -70 \Rightarrow n = 14 \quad \underline{\underline{k=14}}$$

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$$z_1 = z_v + rd$$

$$z_1 - z_v = z_v + rd - z_v = rd = 12$$

$$\boxed{d = 12}$$

$$z_4 = a + 4d$$

$$\Rightarrow z_4 - z_1 = a + 4d - a = 4d = 48 \Rightarrow \underline{\underline{d = 12}}$$

$$z_5 = z_1 + rd \Rightarrow z_1 + rd - z_1 = rd = 12 \Rightarrow d = 12$$

$$\left. \begin{array}{l} z_1 = 3 \rightarrow a = 3 \\ z_4 = 11 \rightarrow d = 12 \end{array} \right\} \Rightarrow b_n = 12n - 9$$

$$z_n = \frac{12n - 9}{2n + 3}$$

$$\frac{12n - 9}{2n + 3} < \frac{3}{2}$$

$$12n - 9 < 3n + 9$$

$$9n < 18 \Rightarrow n < 2 \Rightarrow \boxed{n = 1}$$

$$\begin{array}{cccc} 4 & 9 & 9 & 4 \\ \hline 3 & 0 & -3 & -4 \\ \hline -3 & -3 & -3 & \end{array}$$

$$\Rightarrow ka = -3$$

$$-\frac{3}{2} + B = 4$$

$$\boxed{B = \frac{11}{2}}$$

$$3\left(-\frac{3}{2}\right) + 0\left(\frac{11}{2}\right) = \frac{10 - 9}{2} = \frac{1}{2} = \frac{33}{66}$$

$$\begin{array}{ccc} -4 & -4 & -4 \\ \hline 0 & 4 & 4 \\ \hline 4 & 4 & 4 \end{array}$$

$$ka = 4 \Rightarrow a = 1$$

$$\boxed{C = 4}$$

$$B - 4 = -4$$

$$\boxed{D = 0}$$

$$\Rightarrow z_n = \frac{n^2}{2}$$

$$z_5 = z_1 + rd \Rightarrow z_1 + rd - z_1 = rd = 1 \Rightarrow \boxed{d = 0}$$

$$a + d = 1 \Rightarrow \boxed{a = 1} \Rightarrow z_n = \underline{\underline{0n + 1}}$$

$$0n + 1 = n^2 - 4 \Rightarrow n^2 - 0n - 4$$