



$$E_n = n^2 + \frac{(n-1)n}{2} \rightarrow (10)^2 + \frac{9 \times 10}{2} = 145$$

$$E_{10} = 148$$

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الگوی هشت است. $\frac{n \times (n-1)}{2}$

$$E_n = \frac{n \times (n-1)}{2} \rightarrow \frac{n \times (n-1)}{2} = 110 \rightarrow n \times (n-1) = 220 \rightarrow n = 11$$

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رشته: $5, 9, 13, 17, \dots \rightarrow E_n = E_{n+1} \rightarrow E_n = 4E + 1 \rightarrow E_1 = 5$

فرد: $5, 13, 21, \dots \rightarrow E_n = 11n - 3 \rightarrow E_{11} = 11 \times 11 - 3 = 118$

در سوال، مجموع این ۲ عدد را بنویسید: $118 + 5 = 123$

فرد ها: ۱۱۸
زوج ها: ۵

$$123$$

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$$a_n = \frac{(-1)^n}{n} \rightarrow \left. \begin{array}{l} n=2k \rightarrow \frac{(-1)^{2k}}{2k} = \frac{1}{2k} \\ n=2k-1 \rightarrow \frac{(-1)^{2k-1}}{2k-1} = -\frac{1}{2k-1} \end{array} \right\} = \left| -1 - \frac{1}{2} \right| = 1.5$$

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$$b_k = \left(\frac{1}{2k} \right) - \left(\frac{1}{2k-1} \right) = -\frac{1}{2k} \rightarrow a_k = -\frac{1}{2k} + \frac{1}{2k-1}$$

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

$$-\frac{1}{2k} = -\frac{1}{2} \rightarrow k = 1$$

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$$a_0 = a_1 = 11 \rightarrow a_1 + qd - a_1 - 4d = 11 \rightarrow 4d = 11$$

$$a_0 - a_1 = a_1 + 3d - a_1 = 3d = 3 \times 11 = 33$$

$$a_0 = 11, a_1 = 18 \rightarrow d = \frac{18-11}{1-0} = 7 \rightarrow a_n = 11 + 7n$$

$$11, 18, 25, 32, \dots$$

$$a_n = 11 + 7n$$

$$a_n = \frac{1}{8}, \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, \dots \rightarrow a_n = \frac{2n-1}{4n+2}$$

$$\frac{2n-1}{4n+2} < \frac{1}{2} \xrightarrow{\times 2} \frac{2n-1}{2n+1} < 1 \rightarrow 2n-1 < 2n+1$$

$$n < 1$$

$$a_n = 1, 4, 9, 16, 25, \dots \rightarrow an^2 + bn + c$$

$$-1/8n^2 + Bn \rightarrow -1/8n^2 + B = 0 \rightarrow B = 1/8 \rightarrow a_n = -1/8n^2 + 1/8n$$

$$rA + \Delta B = r(1/8) + \Delta(1/8) = -1/8 + 1/8 = 0$$

$$a_n = -1, -2, -3, -4, \dots \rightarrow an^2 + bn + c$$

$$a_n = \frac{1-2n}{1} = 1-2n \rightarrow a_n = 1-2n$$

$$n^2 - 2n - 1 = 0 \rightarrow (n+1)(n-3) = 0 \rightarrow n = 3$$