

نام و نام خانوادگی پاسخنامه تشریحی تکلیف شماره ۱۱۰۰ کلاس C

$ \begin{aligned} & 1, 5, 12, 22 \rightarrow 0, 1, 3, 4 \rightarrow \frac{n(n-1)}{2} \\ & \quad \quad \quad 1, 4, 9, 16 \rightarrow n^2 \\ & \left. \begin{aligned} & \frac{n(n-1)}{2} \\ & n^2 \end{aligned} \right\} n^2 + \frac{n(n-1)}{2} \\ & n=10 \rightarrow \frac{(10)^2}{100} + \frac{10(9)}{40} = 14.5 \end{aligned} $	۱
$ 0, 1, 3 \rightarrow \frac{n(n-1)}{2} \Rightarrow 55 = \frac{n(n-1)}{2} \Rightarrow 110 = n(n-1) \Rightarrow \underline{n=11} $	۲
$ \begin{aligned} & 5+5 \quad 9+13 \quad 13+21 \quad \Rightarrow \quad 5, 9, 13, \dots \Rightarrow 5+(n-1)4 \rightarrow \text{رنگی ها} \\ & (1) \quad (2) \quad (3) \quad \Rightarrow \quad 5, 13, 21, \dots \Rightarrow 5+(n-1)8 \rightarrow \text{کلی سوره ها} \\ & n=11 \rightarrow \left(5 + \frac{(11-1)4}{2} \right) + \left(5 + \frac{(11-1)8}{2} \right) = 45 + 40 = 85 \end{aligned} $ رنگی ها + کلی سوره ها	۳
$ \begin{aligned} & a_n = \frac{(-1)^n}{n} \rightarrow \text{کوچکترین عددی برای بزرگترین} \rightarrow \frac{(-1)^2}{2} = \frac{1}{2} \\ & a_n = \frac{(-1)^n}{n} \rightarrow \frac{(-1)^1}{1} = -1 \rightarrow \text{کوچکترین} \\ & \left. \begin{aligned} & \frac{1}{2} \\ & -1 \end{aligned} \right\} \frac{1}{2} - (-1) = \underline{\frac{3}{2}} \end{aligned} $	۴
$ \begin{aligned} & b_n = (-3)^n - 7n \xrightarrow{n=3} (-3)^3 - 7(3) = -48 \\ & a_n = -a_{n+22} \xrightarrow{n=k} -a_k + 22 \\ & b_3 = a_k \Rightarrow -48 = -a_k + 22 \rightarrow a_k = 70 \rightarrow \underline{k=14} \end{aligned} $	۵

$$d = \frac{a_m - a_n}{m - n} = \frac{a_{10} - a_7}{10 - 7} = \frac{12}{3} = 4 = d$$

$$a_4 - a_1 = a_1 + 3d - a_1 = 3d = 3 \times 4 = 12$$

6

$$a_1 + d = 7, a_1 + 4d = 12 \Rightarrow 3d = 5 \Rightarrow d = \frac{5}{3} \rightarrow a_1 = \frac{17}{3}$$

$$b_1 = a_1 \rightarrow b_1 = \frac{17}{3} \\ b_4 - a_4 \rightarrow b_4 = 11 \Rightarrow b_n = \frac{17}{3} + (n-1)4$$

7

$$\frac{r}{a}, \frac{q}{v}, \frac{10}{9}, \frac{1f}{11} \rightarrow \frac{r}{a} = \frac{q}{v} = \frac{10}{9} = \frac{1f}{11} \rightarrow \frac{r+(n-1)f}{a+(n-1)r} = \frac{f_n - r}{r_n + r}$$

$$\frac{f_n - r}{r_n + r} < \frac{r}{v} \Rightarrow 11n + 11 < 4n + 9 \Rightarrow 7n < -2 \rightarrow n < -\frac{2}{7} \Rightarrow \underline{n=0}$$

8

$$\begin{cases} A+B=4 \\ 14A+5B=4 \end{cases} \Rightarrow 10A+4B=0 \Rightarrow (5)(2A+B)=0 \\ \hookrightarrow 5 \neq 0 \rightarrow 2A+B=0 \rightarrow B=-2A$$

$$\hookrightarrow -2A+A=4 \rightarrow -A=4 \rightarrow A=-4 \rightarrow B=-2 \times -4 = 8$$

9

$$5A + 2B = 5 \times -4 + 2 \times 8 = -20 + 16 = -4$$

$$\begin{cases} a_1 + d = 11 \\ a_1 + 4d = 11 \end{cases} \Rightarrow 3d = 0 \Rightarrow d = 0 \rightarrow a_1 = 11 \Rightarrow \underline{11 + (n-1)0}$$

$$-4, -4, 0, \dots$$

$$\begin{matrix} -4 & -4 & 0 & \dots \\ \uparrow & \uparrow & & \\ +r & +r & & \\ \hline & & & \\ \uparrow & & & \\ +r & & & \end{matrix} \Rightarrow 2a = 2 \Rightarrow a = 1$$

$$\begin{cases} 1+b+c=-4 \\ r+rb+c=-r \\ n=r \end{cases} \Rightarrow 1+b+c=-4 \Rightarrow 1+b=-4 \Rightarrow b=-5 \Rightarrow c=-4$$

$$\hookrightarrow n^2 - n - 4 \Rightarrow 14 + 2n - 4 = n^2 - n - 4 \Rightarrow n^2 - n - 4 = 14 \Rightarrow n(n-4) = 18 \Rightarrow \underline{n=9}$$

10