

$$\textcircled{1} \quad \textcircled{2} \quad \text{مجموعه‌های معین} = n^2 + \frac{(n-1)n}{2} = 1.2 + \frac{9 \times 10}{2} = 145$$

$$\textcircled{2} \quad \left\{ \begin{array}{l} a+b+c=0 \Rightarrow \frac{1}{4}n^2 - \frac{1}{4}n = 0 \\ \frac{1}{4} - \frac{1}{4} \\ n^2 - n = 11 \Rightarrow n(n-1) = 11 \Rightarrow n=11 \end{array} \right. \quad \textcircled{2}$$

$$\textcircled{3} \quad 6, 9, 12 \Rightarrow \text{مجموعه‌های معین: } \{n+1 \Rightarrow \tau_{11} = \{2+1\} = \{3\}\}$$

$$0, 4, 8, \dots \Rightarrow \text{مجموعه‌های معین: } \{n-2 \Rightarrow \tau_{11} = \{4-2\} = \{2\}\} \quad \textcircled{1.5}$$

$$85 + 45 = 130$$

$$40 + 16 = 56$$

$$\begin{array}{l} n=1 \rightarrow -1 \\ n=2 \rightarrow \frac{1}{4} \\ n=3 \rightarrow -\frac{1}{4} \end{array} \xrightarrow{\text{اندر دو مرتبه معین}} \Rightarrow \max - \min = \frac{1}{4} + 1 = \frac{5}{4} \quad \textcircled{5}$$

$$\textcircled{5} \quad b^2 = (-2)^2 - v(2) = -27 - 21 = -48$$

$$a_n = -6n + 22 = -48 \Rightarrow -6n = -70 \rightarrow n = 11\frac{1}{3}$$

$$\textcircled{6} \quad (10a+b) - (7a+b) = 12 \Rightarrow 10a+b - 7a-b = 12 \Rightarrow 3a = 12 \Rightarrow a=4$$

$$a_4 - a_1 = (4a+b) - (a+b) = 3a = 12 \Rightarrow a=4$$

$$\begin{array}{l} 3a+b=16 \\ 2a+b=7 \end{array} \Rightarrow \left\{ \begin{array}{l} 3a+b=16 \\ -2a-b=-7 \\ \hline 5a=23 \Rightarrow a=4.6 \end{array} \right. \quad \left\{ \begin{array}{l} a_1=3 \\ a_2=11 \end{array} \right. \quad \textcircled{5}$$

$$3, 11, \dots \Rightarrow \text{مجموعه‌های معین} = 8n - 5$$

$$\frac{\text{مجموع اعداد}}{\text{تعداد}} = \frac{\sum n - 2}{2n + 3} \Rightarrow \frac{\sum n - 2}{2n + 3} < \frac{3}{2} \Rightarrow \sum n - 2 < \frac{4n + 9}{2} \Rightarrow 2\sum n - 4 < 4n + 9 \quad (A)$$

$$2n < 13 \rightarrow n < 6.5 \Rightarrow n = 4 \Rightarrow \text{مجموع اعداد از 1 تا 4}$$

$$\begin{array}{ccccccc} & +3 & 0 & -3 & & -4 & \\ & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & & \underbrace{\quad} & \\ 4 & , & 9 & , & 9 & , & 4 & , & 0 \end{array} \quad \left\{ \begin{array}{l} x + y + z = 4 \Rightarrow -\frac{3}{4}n^2 + 1\frac{1}{4}n \\ -\frac{3}{4}n^2 + 1\frac{1}{4}n \end{array} \right. \quad (4)$$

$$2a = -3 \rightarrow a = -\frac{3}{2}$$

$$c + 4 = 4 \rightarrow c = 0$$

$$\left. \begin{array}{l} A = -\frac{3}{4} \\ B = 1\frac{1}{4} \end{array} \right\} \left\{ \begin{array}{l} -\frac{9}{2} + \frac{1\frac{1}{4} \cdot 4}{2} = \frac{44}{2} = 22 \end{array} \right. \quad (5)$$

$$\begin{array}{ccccccc} -4 & , & -2 & , & 0 & , & \dots & \\ & \underbrace{\quad} & \underbrace{\quad} & & & & & \\ & 2 & & 2 & & & & \\ & \underbrace{\quad} & & \underbrace{\quad} & & & & \\ & 2 & & 2 & & & & \end{array} \quad \left\{ \begin{array}{l} x + y + z = -4 \\ 1 \quad -1 \quad -4 \\ \text{مجموع اعداد} = n^2 - n - 4 \end{array} \right.$$

$$c + 0 = -4 \Rightarrow c = -4$$

$$\begin{array}{l} 2a + b = 81 \\ 2a + b = 31 \end{array} \Rightarrow \left\{ \begin{array}{l} 2a + b = 81 \\ -2a + b = -31 \end{array} \right. \Rightarrow \text{مجموع اعداد} = \omega n + 21$$

$$\underline{2a = 10 \Rightarrow a = 5}$$

$$b = 21$$

$$n^2 - n - 4 = \omega n + 21 \Rightarrow n^2 - 4n - 25 = 0 \Rightarrow (n - 9)(n + 4) = 0$$

$$\begin{array}{l} n = -4 \\ n = 9 \end{array} \quad X$$