

$$\{1\}, \{2, 3, 4\}, \{5, 6, 7, 8, 9\} \dots$$

(۱)

$$\left. \begin{array}{l} 8^2 = 64 \\ 9^2 = 81 \end{array} \right\} \Rightarrow \text{دسته پنجم: } \{65, 66, 67, \dots, 79, 80, 81\}$$

$$\frac{81 + 65}{2} = 73$$

$$\{1, 2, 3\}, \{4, 5, 6, 7, 8, 9, 10, 11, 12\}, \{13, \dots, 19\}, \{20, \dots, 26\}, \{27, \dots, 33\} \dots$$

(۱)

(۲)

(۳)

(۴)

(۵)

$$\text{میانگین اعداد دسته پنجم: } \frac{121 + 343}{2} = 232$$

(۳)

$$\left. \begin{array}{l} a_n = an^2 + bn + c \\ \frac{1}{v_0} x + f = -\frac{1}{\omega} \end{array} \right\} \Rightarrow \begin{array}{l} -\omega + \omega b + c = 1f \Rightarrow \omega b + c = 1f \\ -9, 18 + vb + c = 17, 1r \Rightarrow vb + c = 17, 1r \end{array} \Rightarrow \begin{array}{l} 2b = 1 \\ b = f \\ c = -1 \end{array}$$

(۴)

$$\left. \begin{array}{l} a_f = b_r \\ a_n = b_v \end{array} \right\} \Rightarrow \frac{da}{db} = \frac{a_n - a_f}{a_v - a_r} = \frac{\delta}{f} \Rightarrow db = 0, 18 da$$

(۵)

$$b_{10} = b_1 + f db = 0 \Rightarrow b_1 + 9 \times 0, 18 da = 0 \Rightarrow b_1 = -1, 72 da$$

$$\frac{b_{10}}{da} = \frac{b_1 + 1f db}{da} = \frac{-1, 72 da + 11, 72 da}{da} = f$$

$$7(a+d)^2 = 5a(a+2d) + 3a(a+d)$$

(۶)

$$\Rightarrow 7a^2 + 14ad + 7d^2 = 5a^2 + 10ad + 3a^2 + 3ad \Rightarrow 1a^2 + d - 7d^2 = 0$$

$$\frac{a_f}{d} \left\{ \begin{array}{l} \frac{a+2d}{d} = \frac{-2d+2d}{d} = 1 \\ \frac{a+2d}{d} = \frac{1, 5d+2d}{d} = f, 5d \end{array} \right.$$

$$\begin{array}{l} \downarrow \\ a^2 + d - 17d^2 = 0 \Rightarrow \\ (a+fd)(a-7d) = 0 \\ \Rightarrow a \left\{ \begin{array}{l} \frac{-fd}{f} = -7d \\ \frac{7d}{f} = 1, 5d \end{array} \right. \end{array}$$

$$a, b, c \Rightarrow a + c = 2b \Rightarrow a = 2b - c$$

$$b, \frac{a}{r}, \frac{c}{r} \Rightarrow \frac{bc}{r} = \frac{a^2}{r} \Rightarrow a^2 - bc = 0 \Rightarrow (2b - c)^2 - bc = 0 \Rightarrow$$

$$4b^2 - 4bc + c^2 = 0$$

$$\Delta = (-4c)^2 - 4(4b^2) = 16c^2 - 16b^2$$

$$b = \frac{4c \pm \sqrt{16c^2 - 16b^2}}{2} = \frac{4c \pm 4\sqrt{c^2 - b^2}}{2} = 2c \pm 2\sqrt{c^2 - b^2}$$

$$a = 2b - c \begin{cases} 2 \times \frac{c}{r} - c = -\frac{c}{r} \\ 2c - c = c \end{cases} \begin{matrix} \text{X} \\ \text{X} \end{matrix}$$

$$rd = r \times \frac{a}{b} = \frac{-\frac{c}{r}}{\frac{c}{r}} \times r = -r$$

$$a, b, c \Rightarrow ac = b^2 \Rightarrow b^2 - ac = 0 \Rightarrow b^2 - a(2a - 2b) = 0$$

$$2b, 2a, c \Rightarrow 2b + c = 2a \Rightarrow c = 2a - 2b \Rightarrow b^2 - 2a^2 + 2ab = 0 \Rightarrow$$

$$(b + 2a)(b - a) = 0 \Rightarrow b = \begin{cases} -2a \\ a \end{cases}$$

$$c = 2a - 2b \begin{cases} 2a - 2(-2a) = 6a \\ 2a - 2a = 0 \end{cases} \begin{matrix} \text{X} \\ \text{X} \end{matrix}$$

$$\frac{aq^2}{(aq)^2} + \frac{aq}{a^2} = r \Rightarrow \frac{q^2}{a^2} + \frac{aq}{a^2} = r \Rightarrow \frac{q^2}{a^2} + \frac{q}{a} = r \Rightarrow q^2 + qa = ra^2$$

$$q^2 + qa - ra^2 = 0$$

$$(q - ra)(q + a) = 0$$

$$\frac{a^2}{a^2} = \frac{a^2}{aq} \Rightarrow \frac{a^2}{a^2} = -1 \Rightarrow \frac{a^2}{ra^2} = \frac{1}{r}$$

$$q = \begin{cases} ra \\ -a \end{cases}$$

$$q = \frac{c}{b} = \frac{-2a}{-2a} = 1 \Rightarrow \frac{aq}{a^2} = q = 1$$

$$a, q^2 = \sqrt{a, q^2} \Rightarrow a, q^2 = a, q^2 \Rightarrow a, q = 1$$

$$a, q^2 = 2V \Rightarrow a, q \times q^2 = 2V \Rightarrow 1 \times q^2 = 2V \Rightarrow q = 2 \Rightarrow a, q = \frac{1}{2}$$

$$\frac{1}{2} - \frac{1}{2} = 0$$