

$$\{1\}, \{2, 3, 4\}, \dots, \{55, 56, 57, \dots, 11\} \quad (1)$$

اولی دومی ... نهم

$$b = \frac{55 + 11}{2} = 33$$

$$\{1, 2, 3\}, \{4, 5, 6, \dots, 12\}, \{13, \dots, 39\}, \{40, \dots, 121\}, \{122, \dots, 363\} \quad (2)$$

عضو 3 عضو 9 عضو 27 ... عضو 81

$$1, 4, 13, 40, \dots$$

+3 +9 +27 +81

$$\text{تعداد} = 363 - 121 + 1 = 243$$

$$3, 12, 39, \dots$$

+9 +27 +81

$$\text{مجموع} = \frac{3 \times 3 + 121}{2} \times 243 = 51105$$

$$\text{میانگین} = \frac{51105}{243} = 210$$

$$a_n = \begin{cases} p^k \longrightarrow n = 3k \\ -2k + 4 \longrightarrow n = 3k + 1 \\ \left\lfloor \frac{n}{k+2} \right\rfloor + \alpha \longrightarrow n = 3k + 2 \end{cases} \quad (3)$$

$$a_0 = 2^0 = 1$$

$$a_1 = 4$$

$$a_2 = \left\lfloor \frac{2}{2} \right\rfloor + \alpha = 1 + \alpha$$

$$a_3 = 2^1 = 2$$

$$a_4 = 2$$

$$a_5 = \left\lfloor \frac{4}{3} \right\rfloor + \alpha = 1 + \alpha$$

$$a_6 = 2^2 = 4$$

$$a_7 = 0$$

$$a_8 = \left\lfloor \frac{1}{4} \right\rfloor + \alpha = 2 + \alpha$$

$$a_9 = 2^3 = 8$$

$$a_0 + a_1 + \dots + a_9 = 19 \longrightarrow 25 + 3\alpha = 19 \longrightarrow \alpha = -2$$

$$a_1 + a_2 + a_3 + \dots + a_{19} = -1 -1 + 0 + \dots + 0 = -2$$

$$\left\lfloor \frac{19}{9+2} \right\rfloor + (-2) = 0$$

$$\alpha_0 = 14$$

$$C_{\text{درج اول}} = -\left(14 \times \frac{1}{v_0}\right) = -2/2$$

(۲)

$$\alpha_v = 14/2$$

$$\alpha_n = -2/2 \alpha_v + \text{○} n + C$$

$$\left\{ \begin{array}{l} -\frac{1}{2} \alpha_v + \alpha B + C = 14 \rightarrow -(\alpha B + C = 19) \\ -\frac{1}{2} \alpha_v + v B + C = 14/2 \rightarrow v B + C = 4 \end{array} \right.$$

$$\Rightarrow \begin{array}{l} v B = 1 \\ B = 3 \\ C = -1 \end{array}$$

$$B = 3$$

$$C = -1$$

$$\alpha_n = -\frac{1}{2} \alpha_v + 3n - 1 \rightarrow \alpha_1 = -2/2 + 3 = 2/2$$

$$\alpha_{10} = -2/2 + 30 - 1 = 14$$

$$\frac{\alpha_{10}}{\alpha_1} = \frac{14}{2/2} = \text{○} 7$$

$$\alpha_f = t_f \rightarrow \alpha + v d' = t + d \rightarrow t + s d - v d' + 3 d' = t + d$$

(۳)

$$\alpha_x = t_v \rightarrow \alpha + v d' = t + s d \quad \alpha d = v d' \rightarrow d' = \frac{\alpha d}{v}$$

$$t_{10} = 0 \rightarrow t + 9 d = 0 \rightarrow t = -9 d$$

$$t_{10} = t + 14 d = -9 d + 14 d = 5 d$$

$$\frac{t_{10}}{d'} = \frac{5 d}{\frac{\alpha d}{v}} = \text{○} 15$$

$$1 \alpha_v + 13 d \alpha = 5 \alpha_v + s d + 13 \alpha d$$

(۴)

$$\alpha = k d \quad \begin{array}{l} v \alpha_v - s d + d \alpha = 0 \\ v k v + k - s = 0 \end{array}$$

$$k = \frac{-1 \pm \sqrt{1+4v}}{v} = \frac{-1 \pm v}{v} \quad \begin{array}{l} > 1/v \\ < -v \end{array}$$

$$\alpha = -v d \quad \vee \quad \alpha = \frac{v}{v} d \quad C_{\text{وی}}$$

$$\frac{\alpha_v}{d} = -v + v = 1 \quad , \quad \frac{\alpha_v}{d} = \frac{v}{v} + \frac{v}{v} = \frac{2}{v} = \text{○} 2/5$$

$$G_{\text{دنيا}} = a, b, c, \dots \rightarrow 2b = a + c \div b \rightarrow r = \frac{a}{b} + \frac{c}{b} \quad (v)$$

$$G_{\text{دنيا}} = b, \frac{a}{r}, \frac{c}{r}, \dots \rightarrow \frac{a^r}{r} = \frac{bc}{r} \Rightarrow a^r = bc \div b^r \rightarrow \left(\frac{a^r}{b^r} = \frac{c}{b} \right)$$

$$q = \frac{\frac{a}{r}}{\frac{b}{r}} = \frac{a}{r} \times \frac{r}{b} = \frac{a}{b} = r \quad \checkmark$$

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$$\frac{a}{b} + \frac{a^r}{b^r} = r$$

$$t + t^r = r$$

$$t \left(\frac{r-r}{r} \right) \checkmark$$

$$G_{\text{دنيا}} = \frac{b}{r}, b, br, \dots \rightarrow b^r = b^r \quad (1)$$

$$G_{\text{دنيا}} = rb, ra, c, \dots \rightarrow \frac{rb}{r} = \frac{br + rb}{r} \Rightarrow rb = br^r + rbr$$

$$rb, \frac{rb}{r}, br$$

$$b(r - r^r - r) = 0$$

$$q = \frac{\frac{b}{r}}{\frac{b}{r}} = r = (1)$$

$$b = 0 \quad b \quad r = 1$$

$$\frac{a_n}{a_s} = r^r = 1$$

$$\frac{a_s}{(a)^r} + \frac{a_r}{(a)^r} = r \quad \frac{aq^a}{a^r q^r} + \frac{aq}{a^r} = r \quad (9)$$

$$\frac{q^r}{a^r} + \frac{q}{a} = r \quad \frac{q}{a} = t \rightarrow t^r + t = r$$

$$t \left(\frac{r-r}{r} \right)$$

$$\frac{a^r}{a^r} = \frac{a}{q} = \frac{1}{t} = (1), \left(\frac{1}{r} \right)$$

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$$\frac{a}{r}, a, ar, ar^2, ar^3, \dots$$

$$ar^3 = 27 \rightarrow 1 \times r^3 = 27 \rightarrow \boxed{r=3}$$

$$\sqrt{ar^2} = ar \rightarrow r\sqrt{a} = ar \rightarrow \sqrt{a} = a \rightarrow a = \begin{matrix} \rightarrow \circ \times \\ \rightarrow 1 \checkmark \end{matrix}$$

$$a_1 = \frac{a}{r} = \frac{1}{3}$$

$$\frac{1}{3} - \frac{1}{3} = \left(\frac{1}{5} \right)$$