

عسل رضائی

تکلیف ۱۷

هم دختران A

$$\begin{aligned} \text{عدد اول هر دسته} &\rightarrow (n-1)^2 + 1 \rightarrow \text{در دسته ۹} = 8^2 + 1 = 65 \\ \text{عدد آخر هر دسته} &\rightarrow n^2 \rightarrow \text{در دسته ۹} = 9^2 = 81 \rightarrow \text{واسطه حسابی} \rightarrow \frac{65+81}{2} = \boxed{73} \end{aligned}$$

$$\begin{aligned} \text{دنباله اعداد اول هر دسته} &\rightarrow 1, 4, 13, 40, 121, \dots \\ \text{دنباله اعداد آخر هر دسته} &\rightarrow 3, 12, 39, 120, 363, \dots \\ \text{میانگین} &\rightarrow \frac{\text{مجموع}}{\text{تعداد}} = \frac{121+363}{2} = \boxed{242} \end{aligned}$$

$$a_1 = -r \times 0 + r = r \quad / \quad a_r = \left[\frac{r}{0+r} \right] + a = 1+a \quad / \quad \cancel{a_r = r' = r} \quad / \quad a_r = \frac{r}{1+r} = r$$

$$a_\omega = \left[\frac{\omega}{1+r} \right] + a = 1+a \quad / \quad a_g = r' = r \quad / \quad a_v = -r \times r + r = 0 \quad / \quad a_n = \left[\frac{\Lambda}{r+r} \right] + a = 1+a$$

$$a_g = r' = \Lambda \quad / \quad a_{10} = -r \times r + r = -r$$

$$S_{10} = r' + r a = 19 \Rightarrow a = -1$$

$$a_r + a_\omega + a_n + \dots + a_{rg} = \left[\frac{r}{0+r} \right] - 1 + \left[\frac{\omega}{1+r} \right] - 1 + \left[\frac{\Lambda}{r+r} \right] - 1 + \dots + \left[\frac{rg}{9+r} \right] - 1$$

$$= \Lambda$$

$$4n^2 + bn + c = t_n \quad \left. \begin{aligned} t_0 &= -\frac{1}{10} \times 1 + 0 + c = 1^2 \Rightarrow \omega b + c = 1^2 \Rightarrow \frac{1}{10} + \frac{\omega}{10} \\ a &= -1^2 \times \frac{1}{10} = -\frac{1}{10} \Rightarrow t_1 = -\frac{1}{10} \times 1 + b + c = 1^2 \Rightarrow b + c = \frac{11}{10} \end{aligned} \right\} \Rightarrow b = 1 \Rightarrow c = 1^2$$

$$t_0 = -\frac{1}{10} \times 1 + 0 + c = 1^2 \Rightarrow c = 1 \Rightarrow t_n = -\frac{1}{10} n^2 + 1n - 1$$

$$t_{10} = -\frac{1}{10} \times 10^2 + 10 - 1 = 1^2 \quad / \quad t_1 = -\frac{1}{10} + 1 - 1 = \frac{1}{10} \Rightarrow \frac{t_{10}}{t_1} = \frac{1^2}{\frac{1}{10}} = 10$$

دنباله ضمیمه = $a_n + b = a_n \Rightarrow t_f = a_r \Rightarrow t + 2d = 1a + b \Rightarrow f d = \omega a$
 دنباله حسابی = $t_1 + (n-1)d = t_n \Rightarrow t_n = a_r \Rightarrow t + 2d = 1a + b \Rightarrow f d = \omega a$
 $a_{10} = 0 \Rightarrow 10a + b = 0 \Rightarrow a_{10} = 10a + b = \omega a \Rightarrow \frac{a_{10}}{a} = \frac{\omega a}{a} = \frac{f d}{d} = f$

$$4a^2 = \omega a_r a + 3a_r a \Rightarrow 4(a+d)^2 = \omega a(a+2d) + 3a(a+d) \Rightarrow 4a^2 + 8ad + 4d^2 = \omega a^2 + \omega a 2d + 3a^2 + 3ad$$

$$\Rightarrow 4d^2 + 5ad - 2a^2 = 0 \Rightarrow d^2 - ad - 1^2 a^2 = 0 \Rightarrow (d + a)(d - 2a) = 0 \Rightarrow d = \frac{1}{2}a \Rightarrow a = \frac{2}{1}d$$

$$\frac{a_f}{d} = \frac{a + 2d}{d} = \frac{\frac{1}{2}d + 2d}{d} = \frac{\frac{5}{2}d}{d} = \frac{5}{2} \quad / \quad \frac{-2d + d \pm 1}{d} = 1$$

$$a + c = 1^2 b \Rightarrow a = 1^2 b - c$$

$$\frac{bc}{1^2} = \frac{a^2}{1^2} \Rightarrow a^2 = bc \Rightarrow (1^2 b - c)^2 = bc \Rightarrow 1^2 b^2 + c^2 - 2^2 bc = bc \Rightarrow 1^2 b^2 + c^2 - \omega bc = 0 \Rightarrow (c - 1^2 b)(c - b) = 0$$

$$\Rightarrow c = 1^2 b, c = b \Rightarrow a = 1^2 b - c = -1^2 b \Rightarrow \text{دنباله هندسی} = b, -b, b \Rightarrow q = -1 \Rightarrow 1^2 q = -1$$

$$c + 3b = 1^2 a \Rightarrow c = 1^2 a - 3b$$

$$ac = b^2 \Rightarrow a(1^2 a - 3b) = b^2 \Rightarrow 1^2 a^2 - 3^2 b a = b^2 \Rightarrow 1^2 a^2 - 3^2 b a - b^2 = 0$$

$$\Rightarrow -(b-a)(b+1^2 a) = 0 \Rightarrow b = a \quad \text{or} \quad b = -1^2 a$$

دنباله هندسی $\rightarrow 1^2 a, -1^2 a, a \dots \rightarrow q = -\frac{1}{1^2} \quad / \quad \frac{a_9}{a_5} = q^4 = \frac{-1}{1^2}$

$$\frac{a_q}{(a_r)^w} + \frac{a_r}{(a)^v} = \mu \rightarrow \frac{a q^w}{a^r q^w} \frac{a^r q^f}{a^r q^w} \mu \Rightarrow \frac{q^r + a q}{a^r} = \mu \Rightarrow q^r + a q = \mu a^r$$

$$\Rightarrow q^r + a q - \mu a^r = 0 \Rightarrow (q + \mu a)(q - a) = 0 \Rightarrow \begin{cases} q = a \\ q = \mu a \end{cases} \quad \left/ \quad \frac{a_q^r}{a_r^w} = \frac{a_q^r}{a_q^f} = \frac{q}{q} = \boxed{\frac{1}{\mu}, 1} \right.$$

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$$a_\mu = \sqrt{a_\nu} \Rightarrow a q^r = \sqrt{a q^w} \Rightarrow \frac{a_\mu}{(a_r)^r} = 1 \Rightarrow \frac{a q^w}{a_q^f} = 1 \Rightarrow \frac{1}{a q} = 1 \Rightarrow a q = 1$$

$$a_\omega = \mu \nu \Rightarrow a q \times q^w = \mu \nu \Rightarrow q^w = \mu \nu \Rightarrow q = \mu \Rightarrow a = \frac{1}{\mu}$$

$$\frac{1}{\mu} - a = \frac{1}{\mu} - \frac{1}{\mu} = \boxed{\frac{1}{\mu}}$$

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