

۱۹ آفرین

"بلیا انوری - دهم B"

$$1 \rightarrow \{1\}$$

$$2 \rightarrow \{2, 3, 4\}$$

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آن گروه است

$$3 \rightarrow \{5, 6, 7, 8, 9\}$$

عدد اول هر گروه: $(n-1)^2 + 1$

$$\Rightarrow b = \frac{a+c}{2} \rightarrow \frac{181+95}{2} = 73$$

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سؤال ۲: $\{1, 2, 3\}, \{4, 5, 6, \dots, 12\}, \{13, 14, \dots, 39\}, \{40, 41, \dots, 120\}, \{121, \dots, 363\}$

$$\frac{121+363}{2} = 242$$

میان اعداد
دسته پنجم

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$$\alpha_n = \begin{cases} r^k; n = 3k \rightarrow n = 0, 3, 6, 9 \rightarrow 1, 2, 4, 8 \\ -2k+4; n = 3k+1 \rightarrow n = 1, 4, 7 \rightarrow 4, 2, 0 \\ \left\lfloor \frac{n}{k+2} \right\rfloor + a; n = 3k+2 \rightarrow n = 2, 5, 8 \rightarrow 1+a, 1+a, 2+a \end{cases}$$

سؤال ۳: $1+4+2+1+4+2+1+a+1$
 $+a+4a=19$

$$2a+25=19$$

$$\boxed{a=-2}$$

$$\alpha_1 + \alpha_0 + \dots + \alpha_{19} = (1+a) + (1+a) + (2+a) + \dots + (2+a) = 2(a+1) = 2 \times -1 = -2$$

$$n=19 \rightarrow k=9$$

$$2 \times 0 = 2 + a = 0$$

$$\left\lfloor \frac{19}{11} \right\rfloor + a = 1 + a$$

$$\alpha_0 = 14 \rightarrow -5 + 5b + c = 14$$

$$\alpha = \frac{1}{-5} \times 14 = -\frac{14}{5}$$

سؤال ۴:

$$\alpha = 17, 2 \rightarrow \frac{-49}{5} + 7b + c = 17, 2$$

$$\frac{\alpha_{15}}{\alpha_1} = \frac{225 \times \frac{1}{5} + 7 \times -1}{-\frac{1}{5} + 7 - 1} = \frac{114}{2,8} = \frac{5}{1}$$

$$\Rightarrow -5b - c = -19$$

$$7b + c = 27$$

$$2b = 1 \rightarrow \boxed{b=1}, \boxed{c=-1}$$

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حساب: $\alpha_1 + (n-1)d$ فعلی: $\alpha n + b \rightarrow \alpha_1 = 1 \cdot \alpha + b = 0 \rightarrow b = -1 \cdot \alpha$

$\alpha_1 + 3d = 2\alpha' + b \rightarrow \alpha_1 + 3d = 1\alpha'$

سؤال ۵: (۱, ۲, ۵)

$\alpha_1 + 7d = 5\alpha' + b \rightarrow \alpha_1 + 7d = 3\alpha' \rightarrow \alpha_1 + 3d + 4d = 3\alpha' \rightarrow 4d = +2\alpha' \rightarrow d = \frac{+2}{4}\alpha'$

$\alpha_1 + 7d - \alpha_1 - 3d = 5\alpha' + b - 2\alpha' - b$

$\rightarrow 4d = 3\alpha'$

در اینجا $\frac{11\alpha}{(d)}$ $\frac{15\alpha' + b}{-\frac{5}{4}\alpha'} = \frac{5\alpha'}{\frac{+2}{4}\alpha'} = \frac{+2}{1} = 2$ $\langle d \neq 0 \rangle$

$7\alpha_r' = 5\alpha_r \alpha + 3\alpha_r \alpha$

سؤال ۶: $\frac{\alpha_r}{d}$

$7(\alpha + d)^r = 5(\alpha + 3d)^r \alpha + 3(\alpha + d)^r \alpha \Rightarrow 7\alpha^r + 14\alpha^r d + 7d^r = 5\alpha^r + 15\alpha^r d + 3\alpha^r + 3\alpha^r d$

$= 2\alpha^r - 7d^r + \alpha d = 0, \frac{\alpha}{d} = n \rightarrow \alpha = d n \Rightarrow 2d^r n^r - 7d^r + d^r n = 0$

$\rightarrow d^r(2n^r + n - 7) = 0 \rightarrow (2n - 3)(n + 1) = 0 \rightarrow n = \frac{3}{2}, n = -1$

$\frac{\alpha_r}{d} = \frac{\alpha + 3d}{d} = \frac{\alpha}{d} + 3 = n + 3 \rightarrow n = -2 \rightarrow -2 + 3 = 1 \checkmark$
 $\rightarrow n = \frac{3}{2} \rightarrow \frac{3}{2} + 3 = \frac{9}{2} \checkmark$

حساب: $\alpha, b, c \rightarrow 2b = \alpha + c$

سؤال ۷: با عدد گذاری α را فرض کنیم

هندسی: $b, \frac{\alpha}{r}, \frac{c}{r} \rightarrow \frac{\alpha^r}{r} = \frac{bc}{r} \rightarrow \alpha^r = bc$

$\Rightarrow 2b = \alpha + 1 \rightarrow 2\alpha^r = \alpha + 1 \rightarrow \alpha \rightarrow 1 \rightarrow \frac{1}{r} \checkmark$
 $\alpha^r = b$

هندسی: $b, \frac{1}{r}, \frac{1}{r}$

$r = -1 \rightarrow 2r = -2$

هندسی: $\alpha, b, c \rightarrow b^r = \alpha c \rightarrow b^r = \alpha$

سؤال ۸: α را فرض کنیم

حساب: $3b, 2\alpha, c \rightarrow 4\alpha = 3bc \rightarrow 4\alpha = 3b \Rightarrow 4b^r = 3b$

هندسی: $\frac{9}{14}, \frac{3}{r}$

$b = \frac{3}{r}$

$\alpha = \frac{9}{14}$

(۱, ۲, ۵)

$r = \frac{3}{14} \rightarrow \frac{\alpha_9}{\alpha_r} = r^3 = \frac{27}{14}$

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$$\frac{\alpha_r}{(\alpha_r)^r} + \frac{\alpha_r}{(a)^r} = r \rightarrow \frac{\alpha r^a}{a^r r^r} + \frac{\alpha r}{a^r} = r \rightarrow \frac{r^r}{a^r} + \frac{\alpha r}{a^r} = r$$

سؤال 9:

$$\frac{r^r + \alpha r}{a^r} = r \rightarrow r^r + \alpha r - r^r = 0 \rightarrow (r^r + \alpha)(a - r) = 0 \rightarrow \begin{cases} \alpha = r \\ r^r + \alpha = -r \rightarrow r = -r^r \end{cases}$$

$$\rightarrow \frac{\alpha r}{a^r} = \frac{\alpha r}{a^r} = \frac{a^r}{-r a^r} = -\frac{1}{r} \checkmark$$

$$\rightarrow \frac{\alpha r}{a^r} = \frac{\alpha r}{a^r} = 1 \checkmark$$

$$\alpha_r = \sqrt{a_r} \rightarrow \alpha_r^r = a_r \rightarrow \alpha_r^r r^r = \alpha r^r \rightarrow \alpha_r r = 1$$

سؤال 10:

$$\alpha_a = rV \rightarrow \alpha_r^r = rV \xrightarrow{\alpha r = 1} 1 \times r^r = rV \rightarrow r = r^r \rightarrow \alpha_1 = \frac{1}{r}$$

$$\frac{1}{r} - \alpha_1 = \frac{1}{r} - \frac{1}{r} = \frac{1}{r} \checkmark$$

$$\text{دینامیک} \rightarrow a, aq, aq^r \quad (a, b, c)$$

$$\text{دینامیک} \rightarrow kaq, ka, aq^r \quad (k, b, ka, c)$$

$$\text{دینامیک} \rightarrow kaq + aq^r = \varepsilon a \xrightarrow{\div a} ka + q^r = \varepsilon \rightarrow q = 1 \quad \times \quad \text{جواب متعادل}$$

$$\rightarrow q = -\varepsilon \checkmark$$

$$q = -\varepsilon \rightarrow \frac{aq}{a} = \frac{aq^r}{aq^r} = q^r = (-\varepsilon)^r = -4\varepsilon$$

دنباره صبی $a_n = a_1 + (n-1)d$ و دنباره ضریبی $b_n = cn + k$ است

$$\begin{aligned} a_1 &= b_1 \\ a_n &= b_n \\ a_1 + (n-1)d &= b_1 + (n-1)c \\ a_1 + nd &= b_1 + nc \\ nd &= b_1 + nc - a_1 \\ d &= \frac{b_1 + nc - a_1}{n} \end{aligned} \rightarrow \boxed{d = c}$$

$$b_1 = 0 \rightarrow 1 \cdot c + k = 0 \rightarrow \boxed{k = -1 \cdot c}$$

$$\frac{b_1 a_1}{d} = \frac{1 \cdot c + k}{d} = \frac{1 \cdot c - 1 \cdot c}{d} = \frac{0}{d} = \frac{0}{d} = \boxed{0}$$