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۱- الف

$$t_n = \overbrace{d}^{\epsilon} \overbrace{a}^{\epsilon} \overbrace{13}^{\epsilon} \overbrace{14}^{\epsilon}, \dots \rightarrow d, \epsilon$$

$$t_n = t_1 + (n-1)d, \omega + (n-1)\epsilon, (t_{n+1})$$

$$t_{10} = t(10) + 1, (t_1)$$

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(ب)

$$t_n = \overbrace{9}^{\epsilon} \overbrace{10}^{\epsilon} \overbrace{11}^{\epsilon} \overbrace{12}^{\epsilon}, \dots \rightarrow d, \epsilon$$

۲- الف

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$$S_n = \frac{n}{2} (t_1 + (n-1)d) = \frac{10}{2} (t(9) + 9(\epsilon)) = 5 \times 19, (2\epsilon) \checkmark$$

$$\begin{aligned} \overbrace{11}^{\epsilon} \overbrace{12}^{\epsilon} \overbrace{13}^{\epsilon} \overbrace{14}^{\epsilon} &\rightarrow a_{t_1} + a_{t_2} + a_{t_3} + a_{t_4} \Rightarrow t_1 + (11 + 12 + 13 + 14)d, t_1 + 11d, 2\epsilon + (11 \times \epsilon), 2\epsilon + 4\epsilon \\ (299) &\checkmark \rightarrow a_{t_1} + a_{t_2} = a_{t_3} + a_{t_4} \\ (t_1 a_{t_2} + a_{t_3}) &= t_1(a_1 + a_{t_4}) = t_1 \times 2\epsilon \wedge = 299 \wedge \\ \rightarrow a_1 = a_{t_4} = t_1 + \omega a d &\rightarrow t_1(4) + \omega a(\epsilon) = 2\epsilon \wedge \end{aligned}$$

$$d, \frac{2-1-\sqrt{3}}{1}, 1-\sqrt{3} \rightarrow t_{t_1} - t_{t_2} = 2d, (2.2\sqrt{3})$$

۳- الف

$$\begin{aligned} 2 \times 3 \times 4 \times 5, \omega^y + \omega^{2x} &\rightarrow 4 \times \omega^{2x} = \omega^{2x} + \omega^y \rightarrow \omega^y, \omega \times \omega^{2x} \rightarrow y, 2x+1 \\ \rightarrow x+y, 4 &\xrightarrow{y=2x+1} x+2x+1 = 4 \rightarrow x=1, y=2(1)+1=3 \Rightarrow xy = 1 \times 3, (3) \end{aligned}$$

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$$t_x - 2, 4x + 2x - 4, 11x - 4 \rightarrow -t_x = -2 \rightarrow x = \frac{1}{2} \Rightarrow a_n = -3, 0, 3, 6, \dots \rightarrow a_\epsilon, (9)$$

۶- الف

$$\left. \begin{aligned} a_n &= 3, 5, 7, \dots \rightarrow d, 2 \\ b_n &= 2, 5, 8, \dots \rightarrow d', 3 \end{aligned} \right\} \begin{aligned} d_{\text{مبت}} &= 3 \times 2 \times 5 = 30 \\ d', d &\rightarrow \omega, 11, 14, \dots \rightarrow t_n, 4n-1 \end{aligned}$$

اولین جمله مشترک در دنباله = $\omega = t_1$

$$\begin{aligned} a_r &= t_1 \Rightarrow 4n-1 \leq \epsilon \rightarrow n \leq V \rightarrow n, 1, 2, 3, 4, 5, 6, 7, \dots \rightarrow (6V) \\ b_r &= 49 \end{aligned}$$

۷- الف

$$\begin{aligned} a_1 + a_r + a_{2r}, 11 &\rightarrow 3a_r, 11 \rightarrow a_r, V \\ a_1 + a_r + a_{2r}, 6\omega &\rightarrow 3a_r, 6\omega \rightarrow a_r, 3\omega \end{aligned} \rightarrow d, \frac{3\omega - V}{1}, 21 \Rightarrow a_1, V-21, -21$$

$$\frac{a_r - a_r + a_1}{a_1} = \frac{a + 2d - a - d + a}{a} = \frac{a+d}{a} = \frac{a_r}{a} = \frac{V}{-21} = \left(\frac{-1}{3} \right) \checkmark$$

$$a_1 + a_r + a_w = 1\omega \rightarrow \omega_{ar} = 1\omega \rightarrow a_r = \omega$$

$$a_\varepsilon + a_\omega = \omega = a_r + a_v = \omega + a_v \rightarrow a_v = 0$$

$$\rightarrow d, \frac{a_v - a_r}{v - r}, \frac{r_0 - \omega}{\omega}, r$$

$$a_1, a_v + r_d, r_0 + q, (r_q)$$

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$$S_q, 4S_r \rightarrow a_1 + a_r + a_r + a_\varepsilon + a_\omega + a_r + a_v + a_r + a_q = 4a_\omega = 4(\omega_{ar}), r\omega_{ar} \Rightarrow 4a_\omega = r\omega_{ar}$$

$$a_\omega = \omega_{ar}$$

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$$\Rightarrow a + r_d, \omega_{ar} + r_d \rightarrow a, \frac{d}{r} \rightarrow \frac{a_{r_0}}{a_v}, \frac{a + r_d}{a + 4d}, \frac{\frac{d + r_d}{r}}{\frac{d + r_d}{r}}, \frac{r_d}{r_d} = (r)$$

$$a_1 = 11, a_v = 3\omega \rightarrow d, \frac{3\omega - 11}{4}, r$$

$$a_\varepsilon = a + r_d, 11 + 12, 2r, b_\varepsilon$$

$$\rightarrow b_\varepsilon = 3r, b_1 = 3r \rightarrow d', \frac{2r - 3r}{r}, -\omega$$

$$\Rightarrow b_n = 3r, 3r, 2r, \frac{a_\varepsilon + b_\varepsilon}{2}, 1r, 1r$$

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