

$$\text{c)} t_n = r^{n-1} \Rightarrow t_{10} = r^{10-1} = r^9 = 225$$

$$\therefore q^{n-m} = \frac{a_n}{a_m} \Rightarrow \frac{a_{14}}{a_{12}} = q^{14-12} = q^2 \Rightarrow r = 19$$

$$\textcircled{c}) \begin{cases} q^{10-r} = q^s \rightarrow \sqrt{q^s} = q^r = r = 1 \\ t_f = r^{r-r} = r^r = r \end{cases} \Rightarrow r \times 1 = \boxed{r^r}$$

$$b) z_n = 121 \Rightarrow r^{n-2} = 121 \Rightarrow r^{n-2} = r^6 \Rightarrow n-2=6 \Rightarrow n=8$$

$$q^{n-m} = \frac{a_n}{a_m} \Rightarrow q^{n-d} = \frac{q_1}{1r} \Rightarrow q^r = 1 \Rightarrow q = r$$

$$a q_{\heartsuit}^V = a_{\Lambda} \Rightarrow a_{\text{lo}} = a q_{\text{lo}}^q = a q_{\text{lo}}^V \times q_{\text{lo}}^r = a_{\Lambda} \times q^r = q_s \times r^r = q_s \times r^r = \boxed{r_{\Lambda}^c}$$

جواب) $b^r = ac \Rightarrow \left. \begin{aligned} a_1 x a_d &= a_r^r \\ a_r x a_f &= a_r^r \end{aligned} \right\} \Rightarrow a_1 x a_r x a_r x a_f x a_d = r r r \Rightarrow a_r^d = r r r \Rightarrow a_r = \boxed{r}$

1.) $b^r = ac \Rightarrow a_1 \times a_\omega = a_r^r = r^r = \boxed{9}$

$$b^r = ac \Rightarrow r^b \times r^a = (r^c \sqrt{r})^r \Rightarrow r^{a+b} = r^c r^r = r^a \Rightarrow a+b=c$$

$\sqrt[4]{\sqrt{2}} = 2^{1/4} \rightarrow b, 2/4, a \Rightarrow \text{مقام الجذر} = \boxed{2/4}$

$$b^r = ac \Rightarrow (1-x)(x+1) = x^r \Rightarrow x^r = 1 - x^r \Rightarrow x^r + x^r = 1 \Rightarrow 2x^r = 1 \Rightarrow x^r = \frac{1}{2} \Rightarrow x = \sqrt[r]{\frac{1}{2}}$$

$$\left. \begin{aligned} a_1 + a_r &= a_1 + a_1 q^r = r\Delta \\ a_r + a_r &= a_1 q + a_1 q^r = r\Delta \end{aligned} \right\} \Rightarrow a_1 + a_r + a_r + a_r = a_1 + a_1 q + a_1 q^r + a_1 q^r = r\Delta \Rightarrow a(1 + q + q^r + q^r) = r\Delta$$

$$a_r + a_r = a_1 q + a_1 q^r = r\Delta$$

$$1, r, q, r\Delta \Rightarrow \text{در یک جمله} = r\Delta$$

۶

$$a \times a q \times a q^r = a^r q^r = r\Delta = r \begin{cases} a=1 \rightarrow 1, r, q = r\Delta \Rightarrow q=r \rightarrow 1, r, q \rightarrow 1+r+q = 1+r \checkmark \\ q=1 \rightarrow a^r, 1 = r\Delta \Rightarrow a=r \rightarrow r, r, r \rightarrow r+r+r = 3r \neq r\Delta \end{cases}$$

۷

$$\text{الف)} S_n = a_1 \left(\frac{q^n - 1}{q - 1} \right) \Rightarrow S_6 = r \left(\frac{r^6 - 1}{r - 1} \right) = r \times \frac{r^6 - 1}{r - 1} = \frac{r^7 - 1}{r - 1} = 69048$$

$$\text{ب)} a \times a q \times a q^r \times \dots \times a q^5 = a^6 \times q^{15} = \frac{r^6}{r} \times r^{15} = r^{10} \times r^{15} = r^{25}$$

۸

$$a, a q, a q^r, a q^r, \dots \rightarrow a q - a = a(q-1), a q^r - a q = a q(q-1), a q^r(q-1), \dots$$

$$b^r = a c \Rightarrow (a q)^r = a \times a q^r \Rightarrow a^r q^r = a^r q^r \checkmark$$

$$\text{در یک جمله است} = q$$

۹

$$\text{الف)} S_n = \frac{n}{2} (t_{\text{اول}} + t_{\text{آخر}}) \xrightarrow{\text{جمله اول را کم کنیم}} = a + (a + (n-1)d) = a + a + (n-1)d = 2a + (n-1)d \Rightarrow S_n = \frac{n}{2} (2a + (n-1)d)$$

$$\text{ب)} \left. \begin{aligned} S_n &= a_1 + a_1 q + a_1 q^r + \dots + a_1 q^{n-1} \\ S_n q &= a_1 q + a_1 q^r + a_1 q^r + \dots + a_1 q^n \end{aligned} \right\} \ominus \Rightarrow S_n - S_n q = a_1 - a_1 q^n \Rightarrow S_n(1-q) = a_1(1-q^n)$$

$$\Rightarrow S_n = a_1 \left(\frac{1-q^n}{1-q} \right)$$

۱۰