

نام و نام خانوادگی: ..... پاسخنامه تشریحی تکلیف شماره ۱۰۰ کلاس: ..... همین

الف)  $a_{10} = \frac{1}{r} \times r^{10-1} = \frac{1}{r} \times r^9 = \frac{a_{11}}{r} = 254$   $q = 2$   $a_n = \frac{1}{r}, 2, \dots$

ب)  $\frac{a_{14}}{a_{11}} = \frac{a_1 q^{14}}{a_1 q^{11}} = q^3$  و  $q = 2 \rightarrow 2^3 = 8$

ج)  $a_1, x, a_{10}$   
 $\frac{1}{r}, x, 254 \rightarrow x^r = 254 \times \frac{1}{r} = 10^2 \times \frac{1}{r} \rightarrow x = \sqrt{10^2 \times \frac{1}{r}} = 32$

د)  $a_1 q^{n-1} = 128 \rightarrow \frac{1}{r} \times q^{n-1} = 128 \rightarrow n = 9$

$a_1 = 12$   $a_n = 94$

$\frac{a_n}{a_1} = \frac{94}{12} \rightarrow \frac{a_1 q^n}{a_1} = 8 \rightarrow q^n = 8 \rightarrow q = 2$

$a_{10} = a_1 q^r \rightarrow 94 \times 2^r = 94 \times 8 = 752$

$a_1 \times a_2 \times a_3 \times a_4 \times a_5 = r^5$   
 $a_1 \times a_5 = r^2$

$(a_1 \times a_5)^r \times a_3 = r^5$   
 $(a_1 \times a_5) = a_3 = 9$

$(a_2)^r \times (a_4)^r \times a_3 = r^5$   
 $a_2 = 3$

$(\epsilon \sqrt{r})^r = r^b \times r^a \rightarrow r^r = r^{a+b} \rightarrow r^{\frac{a}{r} + \frac{b}{r}} = r^a \rightarrow a+b = a$

$a+b=a \begin{cases} a=0, b=a \\ a=1, b=r \\ a=r, b=r^2 \end{cases}$

$\rightarrow 2, 4\sqrt{2}, 2^2 \rightarrow x = \frac{1+\epsilon}{r} = \frac{a}{r}$

$x^r = (1-x)(1+x) \rightarrow x^r = 1-x^r \rightarrow 2x^r = 1 \rightarrow x^r = \frac{1}{2} \rightarrow x = \pm \sqrt[r]{\frac{1}{2}}$

$$a_1 + a_2 = r\lambda \rightarrow a_1 + a_1 q^r = r\lambda \rightarrow a_1(1+q^r) = r\lambda \Rightarrow \frac{a_1(1+q^r)}{a_1(1+q)} = \frac{r\lambda}{1r} \Rightarrow$$

$$a_1 + a_2 = 1r \rightarrow a_1 q + a_1 q^r = 1r \rightarrow a_1 q(1+q) = 1r$$

$$1+q^r = r\lambda \text{ و } 1+q = 1r, a_1(1+q^r) = r\lambda \Rightarrow a_1(r\lambda) = r\lambda \rightarrow \boxed{a_1 = 1}$$

$$\text{و } q = r$$

1, 1r, q,  $\boxed{rV}$   $\rightarrow$   $\text{تقریباً}$   
 $a_1, a_2, a_3, a_4$

$$\frac{a}{q} + a + aq = rV \rightarrow a^r = rV \rightarrow \boxed{a = r}$$

$$\frac{r}{q} + r + rq = 1r \rightarrow r(\frac{1}{q} + 1 + q) = 1r \rightarrow \frac{1}{q} + 1 + q = \frac{1r}{r} \rightarrow \frac{1}{q} + q = \frac{10}{r}$$

$$\rightarrow \frac{1}{q} + q = \frac{10}{r} \rightarrow \boxed{q = r}$$

$\xrightarrow{\text{تقریباً}} \frac{1}{1r}, 1r, q$   
 $\boxed{1, r, q}$   
 $(1) \quad (r) \quad (r)$

$$a_n = r, q, 1r, \dots \rightarrow q = r$$

$$\text{الف) } S_{10} = a_1 \left( \frac{q^{10} - 1}{q - 1} \right) = K \left( \frac{r^{10} - 1}{r - 1} \right) = r^{10} - 1$$

$$\text{ب) } P_i = \sqrt{(a_1 r a_{10})^{10}} \rightarrow (a_1 r a_{10})^5 = (r r a_1 r q^9)^5 = (r r r r r^9)^5 = (r^9 r^9)^5$$

$$\frac{a}{q}, a, aq, aq^r$$

$$\frac{a}{q} - a = \frac{a(1-q)}{q}$$

$$a - aq = \frac{a(1-q)}{q}$$

$$aq - aq^r = \frac{a(1-q)}{q}$$

$$\left\{ \begin{array}{l} \xrightarrow{\text{دنبه‌ای جریه}} \frac{A}{q}, a(1-q), aq(1-q) \\ AC = a^r(1-q)^r = B^r \xrightarrow{\text{تقریباً}} \\ \text{تقریباً} = \frac{B}{A} = \frac{a(1-q)}{\frac{a(1-q)}{q}} = q \end{array} \right\} \rightarrow \text{تقریباً}$$

$$S_n = a_1 + a_2 + a_3 + \dots + a_n \quad \left[ \text{تقریباً} \right]$$

$$(S_n = a + aq + aq^r + \dots + aq^{n-1})/q$$

$$qS_n = aq + aq^r + \dots + aq^{n-1} + aq^n$$

$$S_n - qS_n = a - aq^n \rightarrow S_n = a \left( \frac{1 - q^n}{1 - q} \right)$$

$$S_n = a + a + d + a + rd + \dots + a + (n-1)d + a + (n-1)d$$

$$S_n = a + (n-1)d + a + (n-1)d + \dots + a + d + a$$

$$rS_n = ra + (n-1)d + ra + (n-1)d + \dots + 1$$

$$rS_n = n(ra + (n-1)d) \rightarrow$$

$$S_n = \frac{n}{r} (ra + (n-1)d) \quad \left[ \text{تقریباً} \right]$$