

نام و نام خانوادگی شماره کلاس ۱۷، ۵ پاسخنامه تشریحی تکلیف شماره ۱۴

$a_n = \frac{1}{r}, 1, 2, \dots$ $a_n = \frac{1}{r} \times r^{n-1} \Rightarrow a_{10} = \frac{1}{r} \times r^9 = \boxed{204}$ (ب)
 $\frac{a_{17}}{a_{13}} = \frac{a_{17}}{a_{13}} = q^4 = r^4 = \boxed{14}$ (ج)
 $\frac{a_9}{a_9} = q^0 = r^0 = \boxed{48}$ $a_9 = a_9 q^0 = a \times q^0 = \frac{1}{r} \times r^0 = r^0 = 48$ (د)
 $\frac{1}{r} \times r^{n-1} = 128 \Rightarrow r^{n-1} = 204 \Rightarrow n-1 = 1 \Rightarrow \boxed{n=9}$

$t_5 = a q^4 = 12$
 $t_8 = a q^7 = 94$
 $\left. \begin{array}{l} t_5 = a q^4 = 12 \\ t_8 = a q^7 = 94 \end{array} \right\} q^3 = 8 \Rightarrow q = 2$ $a q^4 = a \times 16 = 12 \Rightarrow a = \frac{3}{4}$
 $\frac{r}{t} \times r^{n-1} \Rightarrow \frac{r}{t} \times r^9 = \boxed{288}$

$a_1 \times a_2 \times a_3 \times a_4 \times a_5 = 242$
 $a_0 \times a_1 = a_2 \times a_4$

$(a_1)^5 = 242 \Rightarrow \boxed{a_1 = 3}$

$a_1 \times a_5 = a_2 \times a_4 = a_3 \times a_3 \Rightarrow 3 \times 3 = \boxed{9}$

$(\sqrt{r})^r = r^b \times r^a \Rightarrow 32 = r^b \times r^a \Rightarrow 32 = r^{a+b}$

$32 = r^a \Rightarrow r^{a+b} = r^a \Rightarrow a+b = 0$

$\frac{a+b}{r} = \frac{0}{r} = \boxed{2, 0}$

$\frac{t_v}{t_r} = \frac{t_{11}}{t_v} \Rightarrow \frac{x}{1-x} = \frac{x+1}{x} \Rightarrow x^2 = 1-x^2 \Rightarrow 2x^2 = 1 \Rightarrow x^2 = \frac{1}{2}$

$x = \pm \sqrt{\frac{1}{2}}$

به ازای $x = -\frac{\sqrt{2}}{2}$ حاصل $\frac{a_{11}}{a_v} = q^x$ عددی منفی می‌شود

در صورتی که q مقبلاً نامتناهی است پس $x = -\frac{\sqrt{2}}{2}$ غیر قابل قبول است

$t_1 + t_2 = 18 \quad a + aq^2 = 18 \Rightarrow a(1 + q^2) = 18$ $t_1 + t_2 = 12 \quad aq + aq^3 = 12 \Rightarrow aq(1 + q) = 12$ $\frac{1 - q + q^3}{q} = \frac{12}{18} \Rightarrow 1 - q + q^3 = 4q \Rightarrow q^3 - 5q + 1 = 0$ $q = 1 \pm \sqrt{4 \pm 1} \Rightarrow \frac{1 \pm 1}{1} = 2, \frac{1}{2} \Rightarrow q = 2$ $1, 2, 4, 8$	$\frac{a_1(1 + q^2)}{aq(1 + q)} = \frac{18}{12} \Rightarrow \frac{(1 + q)(1 - q + q^3)}{q(1 + q)} = \frac{3}{2}$ 1, 0	6
$a_1 + a_2 + a_3 = 12 \Rightarrow a + aq + aq^2 = 12 \Rightarrow a(1 + q + q^2)$ $a_1 \times a_2 \times a_3 = 27 \Rightarrow a \times aq \times aq^2 = 27 \Rightarrow (a, q)^3 = 27 \Rightarrow a, q = 3 \Rightarrow a_1 = 3$ $a_1 + a_2 + a_3 = 12 \Rightarrow a(1 + q + q^2) = 12 \Rightarrow a + aq + aq^2 = 12$ $a_1 \times a_2 \times a_3 = 27 \Rightarrow (aq)^3 = 27 \Rightarrow aq = 3 \Rightarrow aq^2 = 9$ $a = 1$ $1, 3, 9$	1, 0	7
$a_1 = 2 \quad q = \frac{a_2}{a_1} = \frac{4}{2} = 2$ $S_{10} = 2 \left(\frac{2^{10} - 1}{2 - 1} \right) = 2(2^{10} - 1) = 2^{11} - 2 = 2048 - 2 = 2046$ $P = (2 \times 2 \times 2^9)^2 = (2^{10})^2 = 2^{20}$ $aq^9 = 2 \times 2^9 = 1024$	2046 2	8
$\frac{aq(q-t)}{a(q-t)} = q \Rightarrow \frac{aq^2 - aq}{aq - a} = \frac{t_2 - t_1}{t_1 - t_2}$ $\frac{aq^2(q-1)}{aq(q-1)} = q \Rightarrow \frac{aq^3 - aq^2}{aq^2 - aq} = \frac{t_2 - t_1}{t_1 - t_2}$	2	9
$S_n = a + (a+d) + (a+2d) + \dots + (a+(n-1)d)$ $S_n = (a+(n-1)d) + (a+(n-2)d) + \dots + a$ $2S_n = [a + (a+(n-1)d)] + [(a+d) + (a+(n-2)d)] + \dots + [(a+(n-1)d) + a]$ $\Rightarrow 2S_n = [2a + (n-1)d] + [2a + (n-1)d] + \dots + [2a + (n-1)d]$ $2S_n = n[2a + (n-1)d] \Rightarrow S_n = \frac{n}{2} [2a + (n-1)d]$	1	10

$$\begin{aligned} a + aq^r &= 11 \\ aq + aq^r &= 12 \end{aligned} \rightarrow \frac{a(1+q^r)}{aq(1+q^r)} = \frac{(q^r - q + 1)}{q} = \frac{1}{r} \quad \text{سوال ٦}$$

$$rq^r - rq + r = 12q \rightarrow rq^r - 1 \cdot q + r = 0 \xrightarrow{\text{نمونه}} q^r - 1 \cdot q + r = 0$$

$$q = \frac{q}{r} \leq q = \frac{1}{r}$$

$$q = r \rightarrow a(1+r) = 11 \rightarrow a = 1 \rightarrow 1, r, q, 12$$

$$q = \frac{1}{r} \rightarrow \frac{a}{r} + \frac{a}{q} = 12 \rightarrow \frac{ra}{q} = 12 \rightarrow a = 12$$

$$12, q, r, 1 \rightarrow \max S_n \rightarrow 12$$

$$\begin{aligned} a_1 &= \frac{a}{q} \\ a_2 &= a \\ a_3 &= aq \end{aligned} \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} \quad \frac{a}{q} \times a \times aq = 12 \rightarrow a^3 = 12 \rightarrow \underline{a = \sqrt[3]{12}}$$

$$\text{if } a = r \rightarrow \frac{r}{q} + r + rq = 12 \rightarrow rq^2 - 1 \cdot q + r = 0$$

$$\Delta \rightarrow \frac{1 \pm \sqrt{1 - 4 \cdot (-12)}}{4} = \frac{1 \pm 1}{4} \quad \begin{array}{l} \rightarrow r \\ \rightarrow \frac{1}{r} \end{array}$$

$$q = r \rightarrow \text{نمونه} = 1, r, q$$

$$q = \frac{1}{r} \rightarrow \text{نمونه} = q, r, 1$$

$$S_n = a, \cancel{aq}, \cancel{aq^2}, \cancel{aq^3}, \dots, \cancel{aq^{n-2}}, \cancel{aq^{n-1}} \quad \text{مسئله سوال ١٠}$$

$$S_n q = \cancel{aq} + \cancel{aq^2} + \cancel{aq^3} + \cancel{aq^4}, \dots, \cancel{aq^{n-1}} + aq^n$$

$$S_n q - S_n = aq^n - a \rightarrow S_n(q-1) = a(q^n-1)$$

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