نام و نام خانوادگی ....[illegible]........ پاسخنامه تشریحی تکلیف شماره ..[illegible].. کلاس ...دهم [illegible]... A

۱	$a_1 + a_2 + a_3 = 21 \Rightarrow a_1(1+r+r^2)=21 \Rightarrow \frac{4}{r}(1+r+r^2)=21 \Rightarrow 4+4r+4r^2=21r \Rightarrow$ $4r^2-17r+4=0 \Rightarrow$ $a_1 \times a_2 \times a_3 = 64 \Rightarrow a^3 \times r^3 = 64 \Rightarrow a \times r = 4 \Rightarrow a=\frac{4}{r}$ $r=\frac{-b\pm\sqrt{b^2-4ac}}{2a} = \frac{17\pm\sqrt{17^2-64}}{8}$ $\frac{17\pm 15}{8} = 4, \frac{1}{4}$ ⟵ اگر $q(r)$ [illegible] نزولی ۴ [illegible] نزولی ⟸ $q=\frac{1}{4}$
۲	$a_1=x^2-2 / a_2=2x / a_3=x^2+4 \Longrightarrow (2x)^2=(x^2-2)(x^2+4) \Rightarrow 4x^2=x^4+2x^2-8 \Rightarrow x^4-2x^2-8=0$ if $y=x^2 \Rightarrow y^2-2y-8=0 \Rightarrow y=1\pm 2\sqrt{3}=x^2 \Rightarrow x=\sqrt{2+2\sqrt{3}} / a_1=x^2-2=$ $2+2\sqrt{3}-2=2\sqrt{3} / a_2=2x=2\sqrt{2+2\sqrt{3}} / a_3=x^2+4=6+2\sqrt{3} / q=\frac{a_2}{a_1}=\frac{2x}{x^2-2}=\frac{2\sqrt{2+2\sqrt{3}}}{2\sqrt{3}}$ $=0/63$, [illegible] $0<q<1 \Rightarrow$ [illegible] $\Rightarrow S_n=a\frac{1-q^n}{1-q} \Rightarrow S_7=2\sqrt{3}\times\frac{1-(0/63)^7}{1/63}=$ $2\sqrt{3}\times\frac{1-0/04}{0/37}=2\sqrt{3}\times 2/55=42$
۳	$1+q+q^2+q^3+q^4=\frac{121}{81} \longrightarrow a(1+q+q^2+q^3+q^4)=\frac{121}{81}a = a_1-a_2+a_3-a_4+a_5 = \frac{11^2}{3^4}$ $363=3\times 11^2$
۴	1 ○ ○ Ⓐ ○ ○ 64 حسابی $\Rightarrow 2A=64+1=65 \Rightarrow A=\frac{65}{2}=32/5$ 1 ○ ○ Ⓑ ○ ○ 64 هندسی $\Rightarrow B^2=1\times 64 \Rightarrow B=\sqrt{64}=8$ $A+B=32/5+8=40/5$
۵	$-\frac{99}{4}, -\frac{95}{4}, \dots$ $\frac{+1}{4}=d \Rightarrow a_{101}=a_1+100d=-24+25=\underline{1}$ $128, a_2, \dots \Rightarrow a_8=1=ar^7 \Rightarrow 2^7\times r^7=1 \Rightarrow r=\frac{1}{2}$

a_3 , a_7 , a_9

$(a+2d),(a+6d),(a+8d) \Rightarrow (a+6d)^2=(a+2d)(a+8d)=a^2+12ad+36d^2=a^2+\underbrace{8ad+2ad}_{10ad}+16d^2$

$\Rightarrow 2ad+20d^2=0 \Rightarrow 2d(a+10d)=0 \xrightarrow{\div 2d} a+10d=0 \Rightarrow d=-\frac{a}{10} \Rightarrow$

قدرنسبت دنباله حسابی یا $\frac{a}{10}$ است یا ۰ که ثابت است . ۶

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a_2 , a_4 , a_8

$(a+d),(a+3d),(a+7d) \Rightarrow (a+3d)^2=(a+d)(a+7d)=a^2+6ad+9d^2=a^2+\underbrace{7ad+ad}_{8ad}+$

$7d^2 \Rightarrow -2ad+2d^2=0 \Rightarrow 2d(-a+d)=0 \Rightarrow -[2d(a-d)]=0 \xrightarrow{\div 2d} a=d \Rightarrow \frac{1}{2}=\frac{1}{2}$ ۷

$\Leftarrow$ چون دنباله غیرثابت پس مقدار $\frac{1}{2}$ است

$a_{10}=a_1 r^9=$ $\quad r=2 \Leftarrow \frac{1}{2},1,2$ $\quad (\times 2 \ \times 2)$

$\frac{1}{2}\times 2^9=2^{10}=256$

$\cancel{3a_1}, \cancel{2a_3}, \cancel{a_4}$

$3ar \quad 2ar^2 \quad ar^3 \Rightarrow 2(2ar^2)=3ar+ar^3 \Rightarrow 4ar^2=ar(3+r^2) \Rightarrow 4r=3+r^2 \Rightarrow$

$r^2-4r+3=0 \Rightarrow r=\frac{-b\pm\sqrt{b^2-4ac}}{2a}=\frac{4\pm\sqrt{16-12}}{2}=\boxed{3}\ \boxed{1}$ ۸

$\boxed{r=3} \Leftarrow$ نمی‌تواند ۱ باشد چون سوال گفته غیرثابت

$a_1=2 / a_2=\frac{7}{4} \Rightarrow d=a_2-a_1=\frac{7}{4}-2=\frac{7-8}{4}=-\frac{1}{4} / a_4=2+3\times(-\frac{1}{4})=2-\frac{3}{4}=$

$\frac{5}{4} / a_8=2+(7\times-\frac{1}{4})=2-\frac{7}{4}=\frac{1}{4} / a_{13}=2+12\times(-\frac{1}{4})=2-3=-1 / a_{13}+k, a_8+k,$

$a_4+k \Rightarrow -1+k , \frac{1}{4}+k , \frac{5}{4}+k \Rightarrow (\frac{1}{4}+k)^2=(-1+k)(\frac{5}{4}+k) \Rightarrow k^2+\frac{1}{2}k+\frac{1}{16}=$ ۹

$k^2-\frac{1}{4}k-\frac{5}{4} \Rightarrow (\frac{1}{2}-\frac{1}{4})k+\frac{1}{16}+\frac{5}{4}=0 \Rightarrow \frac{1}{4}k+\frac{21}{16}=0 \Rightarrow k=-\frac{21}{4} / a_{13}+k=\frac{-25}{4}$

$a_8+k=-\frac{20}{4}=-5 / a_4+k=\frac{-16}{4}=-4 / q=\frac{(a_8+k)}{(a_{13}+k)}=\frac{-5}{\frac{-25}{4}}=4/5 / q=\frac{(a_4+k)}{(a_8+k)}=\frac{-4}{-5}=\underline{4/5}$

$a=A / aq^3=A+d / aq^6=A+9d \Rightarrow d=a(q^3-1) \Rightarrow x=q^3 \Rightarrow x^2-9x+8=0 \Rightarrow$

$x=\frac{9\pm\sqrt{81-32}}{2}=\frac{9\pm\sqrt{49}}{2}=\left.\begin{matrix}\boxed{8}\\ \boxed{1}\end{matrix}\right\} \Rightarrow \begin{matrix} q^3=8 \Rightarrow q=2 \\ q^3=1 \Rightarrow q=1 \end{matrix} / a(1+q^3+q^6)=a(1+8+64)=$

$a\times 73=73 \Rightarrow a=1 \Rightarrow$

$d=a(q^3-1)=1(8-1)=7 \Rightarrow d=7$ یا ۰ . ۷ جواب ۱۰