Year. Month. Date. ( ) تکلیف ۱۵ دهم دختر B الیا یادگاری

۱) ~~[illegible]~~ $\frac{a_2}{q} \times a_2 \times a_2 q = 64 \rightarrow a_2^3 = 64 \rightarrow a_2 = 4$

$\frac{a_2}{q} + a_2 + a_2 q = 21 \longrightarrow \frac{4}{q} + 4 + 4q = 21 \rightarrow \frac{4}{q} + 4q = 17 \rightarrow \frac{4+4q^2}{q} = 17$

$17q = 4 + 4q^2 \rightarrow 4q^2 - 17q + 4 = 0 \rightarrow q = \frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow \frac{17 \pm \sqrt{289-64}}{8} =$

$\rightarrow \frac{32}{8} = 4$ × صحیح

$\rightarrow \frac{2}{8} = \frac{1}{4}$ غیرصحیح ✓

۲) $x^2+4 ,\ 2x ,\ x^2-2 \longrightarrow (x^2-2)(x^2+4) = (2x)^2$

$x^4 + 2x^2 - 8 = 4x^2 \rightarrow x^4 - 2x^2 - 8 = 0$

$(x^2-4)(x^2+2) \rightarrow x^2 = 4 \rightarrow x = \pm 2$ چون گفته مرحلی ۲+ قابل قبول است ✓

$\rightarrow x^2 = -2$ غیرممکن

$S_7 = a_1\left(\frac{1-q^7}{1-q}\right) \rightarrow 8\left(\frac{\frac{127}{128}}{\frac{1}{2}}\right) = \frac{127}{8}$

۳) $a_1 + a_1 q + a_1 q^2 + a_1 q^3 + a_1 q^4 \longrightarrow \underbrace{a_1}_{243}\underbrace{(1+q+q^2+q^3+q^4)}_{\frac{121}{81}} = \cancel{243}^{3} \times \frac{121}{\cancel{81}_{1}} = \boxed{363}$

۴) $1 \underbrace{\qquad\qquad}_{5} 64 \xrightarrow{\text{حسابی}} \frac{64-1}{6} = \frac{63}{6} = 10.5 = q$ جمله وسط $= a_4 = a_1 + 3d$

$1 + 3(10.5) = 32.5$

$1 \underbrace{\qquad\qquad}_{5} 64 \xrightarrow{\text{هندسی}} ab = c^2 \rightarrow 64 \times 1 = 64 = a_4^2 \rightarrow +8 = a_4 = B$

$\rightarrow a_4 = -8 = B$

$A + B = 8 + 32.5 = 40.5$ یا $-8 + 32.5 = 24.5$

۵) $-24 ,\ -\frac{95}{4} , \dots \longrightarrow a_n = \frac{1}{4}n - \frac{97}{4} \rightarrow a_{101} = \frac{101-97}{4} = \frac{4}{4} = 1$

$+\frac{1}{4}$

$a_8 = a_1 q^7 \longrightarrow 128(q)^7 = 1 \rightarrow q^7 = \frac{1}{128} \rightarrow q = \frac{1}{2}$

BERKEH

$a_1+2d\ ,\ a_1+6d\ ,\ a_1+8d \rightarrow (a_1+8d)(a_1+2d)=(a_1+6d)^2$ (6

$a_1^2+10a_1d+16d^2=a_1^2+36d^2+12a_1d$

$-20d^2=2a_1d \rightarrow a_1=-10d \qquad 2a_1d+20d^2=0 \qquad 2d(a_1+10d)=0$

$d=\frac{-a_1}{10}$ اگر $q=\frac{1}{2}$ یا ← اگر d صفر باشد ← تصاعد حسابی ثابت ← $q=1$ قدر نسبت هندسی

$a_1+d\ ,\ a_1+3d\ ,\ a_1+7d \rightarrow (a_1+d)(a_1+7d)=(a_1+3d)^2$ (7

$a_1^2+\cancel{7}d^2+8a_1d=a_1^2+9d^2+6a_1d \qquad 2a_1d=2d^2 \rightarrow a_1=d$

$2d\ ,\ 4d\ ,\ 8d \qquad a_n=a_1(q)^{n-1} \rightarrow a_{10}=\frac{1}{4}(2)^9=\boxed{128}$

$3a_1q\ ,\ 2a_1q^2\ ,\ a_1q^3 \rightarrow 2a_1q^2-3a_1q=a_1q^3-2a_1q^2$ (8

$a_1q(2q-3)=a_1q^2(q-2) \rightarrow 2q-3=q^2-2q \rightarrow q^2-4q+3=0$

$q=\frac{-b\pm\sqrt{\Delta}}{2a} \rightarrow \frac{4\pm\sqrt{16-12}}{2} \begin{cases} 3 \\ 1 \ \times \end{cases}$

$2\ ,\ \frac{7}{4}\ ,\ \ldots \rightarrow a_n=\frac{1}{4}n+\frac{9}{4} \begin{cases} \rightarrow a_4=\frac{5}{4} \\ \rightarrow a_n=\frac{1}{4} \\ \rightarrow a_{13}=-1 \end{cases} \qquad -\frac{16}{4}\ ,\ -\frac{20}{4}\ ,\ -\frac{25}{4}$ (9

$\frac{5}{4}+x\ ,\ \frac{1}{4}+x\ ,\ -1+x \longrightarrow (x-1)\left(x+\frac{5}{4}\right)=\left(x+\frac{1}{4}\right)^2 \qquad -16x=84$

$x^2+\frac{1}{4}x-\frac{5}{4}=x^2+\frac{1}{16}+\frac{x}{2} \rightarrow \frac{x}{4}-\frac{x}{2}=\frac{1}{16}+\frac{5}{4} \rightarrow \frac{-x}{4}=\frac{21}{16} \rightarrow x=-\frac{21}{4}$

$a_1\ ,\ a_1r^3\ ,\ a_1r^6 \qquad d=ar^3-a \rightarrow a(r^3-1) \qquad a_1(1+r^3+r^6)=73$ (10

$ar^6=a+9d \rightarrow a+9a(r^3-1) \qquad r^6=1+9(r^3-1) \rightarrow r^6-9r^3+8=0$

$(r^3-1)(r^3-8)=0$

$r^3 \rightarrow 1 \Rightarrow r=1 \qquad d=a(r^3-1) \rightarrow a(0)=0 \ \times$

$r^3 \rightarrow 8 \Rightarrow r=2 \qquad a_1\times(1+8+64)=73a_1 \rightarrow a_1=1$

$d=1\times(8-1)=\boxed{7}$