تکلیف شماره ۱۵ — باران قاسمی — ۱۹

Subject: Year: Month: Day:

۱- $a_1+a_2+a_3=21 \quad \frac{a}{q}+a+aq=21 \quad \frac{a}{q}\times a\times aq=64 \quad a=4$

$\frac{4}{q}+4+4q=21 \quad q=\frac{1}{4}$ — ۳

۲- $a_1=4+4=8 \quad a_2=4 \quad a_3=2 \quad q=\frac{1}{2}$ — ۳

$4a^2=(a^2-2)(a^2+4) \Rightarrow a^4-2a^2-8=0 \Rightarrow (a^2-4)(a^2+2)=0$ → $a=2$ ✓ ، $a=-2$ ✗

$8\left(\frac{1-(\frac{1}{2})^7}{1-\frac{1}{2}}\right)=\frac{127}{8}$

۳- $1+q+q^2+q^3+q^4=\frac{121}{81} \quad a_1=243 \quad S_5=a_1+a_1q+a_1q^2+a_1q^3+a_1q^4=a_1(1+q+q^2+q^3+q^4)=363$ — ۳

۴- $a=1, a_7=64 \quad a_7=a_1+6d \quad d=10.5 \quad a_8=1+7(10.5)=73.5$ — ۲

$a_1=1 \quad a_7=64 \quad q^6=64 \quad q=\pm 2$

$A+B=73.5+8=80.5 \quad A+B=73.5-8=65.5$

۵- $d=\frac{-99}{4}-(-24)=\frac{1}{4} \quad a_8=1=aq^7 \Rightarrow \frac{aq^7}{a}=\frac{1}{128} \Rightarrow q=\frac{1}{2}$ — ۳

$a_{10}=a_1+10d=1$ (-24 ✓، 25 ✓)

۶- $a_4, a_7, a_{11} \rightarrow a_1+3d, a_1+6d, a_1+10d \Rightarrow (a_1+6d)^2=(a_1+3d)(a_1+10d) \Rightarrow 27d^2+27a_1d=0$ — ۳

$d(10d+a_1)=0$ → $d=0$ ، $10d+a_1=0 \rightarrow d=\frac{-a}{10}$

۷- $a_3, a_4, a_8 \rightarrow a_1+d, a_1+3d, a_1+7d \quad a_{10}=aq^9=\frac{1}{4}\times 2^9=128$

$(a_1+3d)^2=(a_1+d)(a_1+7d) \Rightarrow 9d^2-9da_1=0$ → $d=a_1$ ، $d\neq 0$ ✗ — ۳

۸- $3a_2, 2a_3, a_4 \rightarrow 3aq, 2aq^2, aq^3 \quad 2a_1q^2-3a_1q=a_1q^3-2a_1q^2 \rightarrow a_1q(2q-3)=a_1q(q^2-2q)$

$2q-3=q^2-2q \Rightarrow q^2-4q+3=0 \quad (q-1)(q-3)=0$ → $q=3$ ، $q=1$ ✗ — ۲

Pasha

Year: Month: Day:

Subject:

-9

$2, \frac{5}{4}, \dots \rightarrow d = -\frac{1}{4}$ $\quad a_4 = 2 + \frac{-3}{4} = \frac{5}{4}$, $a_8 = 2 + \frac{-5}{4} = \frac{3}{4}$

$a_{12} = 2 + \frac{-11}{4} = -1$ $\quad a_4 + k, a_8 + k, a_{12} + k \rightarrow \frac{5}{4} + k, \frac{3}{4} + k, -1 + k \Rightarrow (\frac{3}{4} + k)^2 = (\frac{5}{4} + k)(k - 1)$

$\frac{1}{16} + k^2 + \frac{k}{2} = k^2 - \frac{5}{4} + \frac{k}{4} \Rightarrow k = \frac{-21}{4}$ $\quad -4, -5, \frac{-25}{4} \Rightarrow q = \frac{5}{4}$

(3)

-10

(1)

a_1, a_4, a_7 $\quad a_1 + a_4 + a_7 = 21$ $\quad a_1 = t_1, a_4 = t_2, a_7 = t_3$

$a_4 - a_1 = \frac{a_7 - a_4}{8} \rightarrow a_1(q^3 - 1) \Rightarrow \frac{a_1 q^3 (q^3 - 1)}{8} = 1 \Rightarrow q = 1$ $\quad 3a = 21 \Rightarrow a = \frac{21}{3}$

$d = aq^2 - a \Rightarrow \frac{21}{3} - \frac{21}{3} = 0$

↳ این از جواب‌هاست!