امیرعلی عمران — جبر تعالی — تکلیف ۱۷

گروه دهم تیر B

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اعداد آخر

1   2   3 ———

1^2 2^2 3^2

$A = \{65, \ldots, 81\}$

$(81 - 65) + 1 = 17$

$S_n = \frac{n}{2}(a_1 + a_n) \rightarrow \frac{17}{2}(146) = 1241$

$\frac{a+c}{2} = b \rightarrow \frac{146}{2} = 73$

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$1, \ldots, 3$ (1)

$4, \ldots, 12$ (2)

$13, \ldots, 39$ (3)

$40,$ ——— $, 120$ (4)

$121,$ ——— $, 363$ (5)

$\frac{121 + 363}{2} = 242$

$a_2, a_5, a_8 \;/\; a_1, a_4, a_7 \;/\; a_0, a_3, a_6, a_9$

$S_{10} = 1 + 4 + (1+a) + 2 + (1+a) + 4 + 5 + (2+a) + 8 = 19$

$a = -2$ $n = 3k + 2$

$a_n = \left[\frac{8}{k+1}\right] - 2 \Rightarrow \frac{3k+2}{k+2} = 2 = \left[\frac{k-2}{k+2}\right] \Rightarrow k = 0, 1$

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a, aq, aq^2 — $3aq, 2a, aq^2$

$3aq + aq^2 = 4a \Rightarrow 3q + q^2 = 4$ — $q^2 + 3q - 4 = 0$

$q = 1$ ✗ — -4 ✓

$\frac{aq^8}{aq^5} = q^3 = (-4)^3 = -64$

۹-

$\frac{aq^5}{a^2q^3} = \frac{q^2}{a^2} = 2$ — $\frac{q^2}{a^2} + \frac{q}{a} = 2$ — $\frac{a^2}{aq} = \frac{a}{q}$

$\left(\frac{q}{a}\right)^2 + \frac{q}{a} - 2 = 0$ — $\frac{q}{a}$: 1, -2

$\frac{q^2}{a^2} + \frac{a}{q} - 2 = 0 \Rightarrow \frac{a}{q}$: 1, $\frac{1}{2}$

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$(aq^3)^2 = aq^4 \times aq^2 \Rightarrow a^2q^6 = aq^4 \times aq^3$

$\div aq^3 \Rightarrow aq^4$ — $q^2 \Rightarrow 27$ — $q = \sqrt{27}$ — $729a = 27$ — $a = \frac{1}{27}$

$\Rightarrow aq^4 = 27$

$\frac{97}{54} - \frac{2}{54} = \frac{95}{54}$