سوال ۱: ۲۰

بازنگاه تصحیح

$\{1\}, \{2,3,4\}\ \{5,6,7,8,9\}$ $1,2,5,10,\ldots$

$9\times 9 = 81\ \{65, \ldots, 81\}$ $(n^2-1)^2+1$

$8^2+1=65$

$\frac{65+81}{2} =$ واسطه $= \frac{146}{2} = 73$

۲) $\{1,2,3\}, \{4,5,6,\ldots,12\}\ \{13,\ldots 39\} \ldots$

$\{40, \ldots 120\}\ \{121, \ldots 363\}$

تعداد $= (363-121)+1 = 243$

مجموع $= \left(243 \times \frac{121+363}{2}\right) \div 243 \Longrightarrow \frac{121+363}{2} = 242$

۳) $a_0 + a_1 + a_2 + a_3 + a_4 + a_5 + a_6 + a_7 + a_8 + a_9$

$2^0, 2^1, 2^2, 2^3$

$\left[\frac{n}{k+2}\right]+a \longrightarrow \left[\frac{2}{2}\right]+a\ \left[\frac{8}{2+2}\right]+a+\left[\frac{5}{1+2}\right] \Rightarrow$

$S_{10} = 19 \longrightarrow 25+3a = 19 \rightarrow a=-2$

$a_2 + a_5 + \cdots + a_{29} \Rightarrow n = 3k+2 \longrightarrow \left[\frac{2}{0+2}\right]-2, \left[\frac{5}{1+2}\right]-2 \ldots$

$1+1-2-2+1-2 \ldots -2 =$ ~~[illegible]~~ -2

۴) $a = \frac{1}{70}x - 14 = \frac{-1}{5}$ $a_{15} = 14$

$49a + 7b + c = 17.2$ $\frac{-24}{5} + 2b = \frac{32}{10} \longrightarrow b = 4$

$-25a - 5b - c = 14$

$24a + 2b = 3.2$ $\left(25\times\frac{-1}{5}\right) + (5\times 4) + c = 14$

$a_1 = \frac{14}{5}$ $\frac{a_{15}}{a_1} = 5$ -5 20 $c=-1$

$a_4 = 3d + a$ $\quad a_{12} = 2a_1 + b$

$a_8 = 7d + a$ $\quad a_{17} = 7a_1 + b$

$-3a + a = -8a$

$a_{12} = 2a_1 - 10a_1 = -8a_1$

$a_{17} = 2a_1 - 10a_1 = -8a_1$

$d = \frac{2}{5}a$ $\quad \frac{7d + a = -3a}{\hookrightarrow 5d = 2a}$

$a_{10} = 10a' - 10a' = 2a'$

(4

$a(a^2 + d^2 + 2ad) = 2a^2 + 10da + 3a^2 + 15da$

$a^2 + \frac{1}{2}da - 3d^2 = 0 \quad (a + 2d)(a - \frac{3}{2}d)$

$a = \begin{cases} \rightarrow -2d \\ \rightarrow +\frac{3}{2}d \end{cases}$ $\quad a_5 = a + 3d$ $\begin{cases} \rightarrow -2d + 3d = d \\ \rightarrow +\frac{5}{2}d + \frac{1}{2}d = 5d \end{cases}$

$\frac{a_5}{a} = \frac{d}{d} = 1 \rightarrow \frac{5d}{d} = 5$

(5

a, b, c $\quad b, \frac{a}{2}, \frac{c}{5}$

$a \quad a+d \quad a+2d \quad a+d \quad \frac{a}{2} \quad \frac{a+2d}{5}$

$\frac{a^2}{5} = (a+d)\left(\frac{a+2d}{5}\right) \rightarrow \frac{a^2}{5} = \frac{a^2}{5} + \frac{3da}{5} + \frac{2d^2}{5}$

$\frac{1}{5}d(3a + 2d) = 0 \quad 3a = -2d$

$a = -\frac{2}{3}d$

$x^2 - 1 = -2$

$a = \frac{-d}{\frac{3}{2}d} = -1$

(6

a, b, c $\quad 3b, 2a, c$ $\quad 2a = 3aq + aq^2$

$a \quad aq \quad aq^2 \quad 3aq \quad 2a \quad aq^2 \quad aq^2 + 3aq - 4a = 0$

$a(q^2 + 3q - 4) = 0 \quad (q+4)(q-1)$ $\quad q = 1 \rightarrow$ غير مقبول

$q^2 = -9\varepsilon$ $\quad q = \varepsilon$ ✓

$\frac{aq^{\omega}}{a^{\omega}q^{\omega}} + \frac{aq}{a^{\omega}} = 1 \quad \frac{q^{\omega}}{a^{\omega}} + \frac{aq}{a^{\omega}} = 1 \rightarrow$ (9

$2a^{\omega} = q^{\omega} + aq \qquad q^{\omega} + aq - 2a^{\omega} = 0 \quad (q+2a)(q-a)$

$q \begin{cases} -2a \\ \rightarrow +a \end{cases} \qquad \frac{a^{\omega}}{aq} \begin{cases} 1 \\ \frac{-1}{2} \end{cases}$

$a_{\omega} = aq^{\omega} \qquad a_{\varepsilon} = a_{\omega}q \quad \varepsilon = aq^{\omega}$ (10

$aq = 1 \qquad aq\varepsilon = 27 \qquad aq \times q^{\omega} = 27 \rightarrow q = 3$

$a \times 11 = 27 \qquad a = \frac{1}{3}$

$\frac{1}{2} - \frac{1}{3} = \frac{1}{6}$