نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۱۷ کلاس .....

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آخرین عدد $(9)^2 = 81$

دسته نهم

آخرین عدد

دسته هشتم $(8)^2 = 64$

دسته نهم $\{65, 66, \dots, 81\}$ $\frac{81+65}{2} = 73$

۲

$\{1, 2, 3\}, \{3, \dots, 12\}, \{13, \dots, 39\}$

$a_1 = 3, 12, 39, 120, 363$

$+9, +27, +81, +243$

دسته ۵: $\{121, \dots, 363\}$

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

۳

$a_0 = 2^0 = 1$ $a_2 = 2^1 = 2$ $a_4 = 2^2 = 4$ $a_6 = 2^3 = 8$

$a_1 = -2 \times 0 + 6 = 6$ $a_3 = -2 \times 1 + 6 = 4$ $a_5 = -2 \times 2 + 6 = 2$

$a_7 = \left[\frac{7}{2+2}\right] + a_3 = 1 + a_3$ $a_5 = \left[\frac{5}{1+2}\right] + a_1 = 1 + a_1$ $a_8 = \left[\frac{8}{2+2}\right] + a_4 = 2 + a_4$

$S_{10} = 2a_5 + 2a_7 = 19 \rightarrow a = -2$

$a_2 + a_5 + a_8 + \dots + a_{29} = (-1) + (-1) + 0 + \dots + 0 = -2$

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$a_n = an^2 + bn + c$ $a_5 = 16$ $a_7 = 17/2$

$a \times 5^2 + b \times 5 + c = 25a + 5b + c = 16$

$a \times 7^2 + b \times 7 + c = 49a + 7b + c = 17/2$

$a = \frac{1}{10} \times -16 = \frac{-1}{5} \Rightarrow 25 \times \frac{-1}{5} + 5b + c = 16 \Rightarrow 5b + c = 19$ $\left\{ 49 \times \frac{-1}{5} + 7b + c = 17/2 \Rightarrow 7b + c = 27 \right.$

$(7b + c) - (5b + c) = 27 - 19 \Rightarrow 2b = 8 \quad b = 4 \rightarrow 5 \times 4 + c = 19 \rightarrow c = -1$

$a_1 = -\frac{1}{5} + 4 - 1 = 2/8$

$a_{15} = \frac{-1}{5} \times 225 + 4 \times 15 - 1 = -45 + 60 - 1 = 14$ $\Big\} \frac{a_{15}}{a_1} = \frac{14}{2/8} = 5$

۵

$a_n = a_1 + (n-1)d$ $t_n = bn + c$

$a_4 = t_2 \rightarrow a_1 + 3d = 2b + c$

$a_8 = t_7 \rightarrow a_1 + 7d = 7b + c$ $\Big\} \rightarrow 4d = 5b$

$t_{10} = 10b + c = 0 \rightarrow c = -10b$

$d = \frac{5b}{4}$

$a_1 + 3 \times \frac{5b}{4} = 2b - 10b \rightarrow a_1 + \frac{15b}{4} = -8b$

$a_1 = -8b - \frac{15b}{4} = -\frac{32b}{4} - \frac{15b}{4} = -\frac{47b}{4}$

$t_{15} = bn + c = bn - 10b = b(n-10)$ $t_{15} = b(15-10)$ $t_{15} = 5b$

$\frac{t_{15}}{d} = \frac{5b}{\frac{5b}{4}} = 4$

۶	$6(a+d)^2 = 5(a+2d)(a) + 3(a+d)(a)$ $6a^2 + 6d^2 + 12ad = 5a^2 + 10ad + 3a^2 + 3ad$ $\frac{2a^2}{d^2} + \frac{ad}{d^2} - \frac{6d^2}{d^2} = 0 \Rightarrow \frac{2a^2}{d^2} + \frac{a}{d} - 6 = 0$ $\frac{a^2}{d^2} + \frac{a}{d} - 12 = 0 \quad (\frac{a}{d} + 4)(\frac{a}{d} - 3)$ یا $\frac{a}{d} = \frac{3}{2}$ یا $\frac{a}{d} = -\frac{4}{2} = -2$ $\frac{a_4}{d} = \frac{a_1 + 3d}{d} = \frac{a}{d} + 3$ 1) $-2 + 3 = 1$ 2) $\frac{3}{2} + 3 = \frac{3}{2} + \frac{6}{2} = \frac{9}{2} = 4.5$
۷	$a \quad b \quad c \qquad b \quad \frac{a}{2} \quad \frac{c}{4}$ $\Rightarrow 2b = a + c \qquad \Rightarrow (\frac{a}{2})^2 = b \times \frac{c}{4} \qquad \frac{a^2}{4} = \frac{bc}{4} \to a^2 = bc$ $a^2 = b(2b - a) = 2b^2 - ab \qquad a^2 + ab - 2b^2 = 0$ $\Delta = 9b^2 \quad \sqrt{\Delta} = 3b$ $a = \frac{-b + 3b}{2} = b$ ✗ چون متمایزند $a = \frac{-b - 3b}{2} = -2b$ ✓ $a = -2b \quad c = 4b$ $\Rightarrow b, \frac{-2b}{2}, \frac{4b}{4} \Rightarrow b, -b, -b$ $q = -1 \qquad 2q = -2$
۸	$b^2 = ac$, $c = \frac{b^2}{a}$ / $3b, 2a, c$ ($+d$, $+d$) $\Rightarrow 2a - 3b = c - 2a \Rightarrow 4a - 3b - c = 0$ $(4a - 3b - \frac{b^2}{a} = 0) \quad \frac{4a^2}{a^2} - \frac{3ab}{a^2} - \frac{b^2}{a^2} = 0 \qquad q = \frac{b}{a} \Rightarrow 4 - 3(\frac{b}{a}) - (\frac{b}{a})^2 = 0$ $4 - 3q - q^2 = 0 \qquad q^2 + 3q - 4 = 0 \quad (q+4)(q-1)$ یا -4 یا $1 \to$ متمایز نیست ✗ $\frac{a_9}{a_6} = \frac{aq^8}{aq^5} = q^3 = (-4)^3 = -64$
۹	$\frac{aq^5 q^2}{a^2 q^4} + \frac{aq}{a^2} = 2$ $\frac{q^2}{a^2} + \frac{q}{a} = 2 \to \frac{q^2}{a^2} + \frac{q}{a} - 2 = 0 \qquad (\frac{q}{a} + 2)(\frac{q}{a} - 1)$ (-2, 1) $\frac{a^2}{aq} = \frac{a}{q}$: 1 یا $-\frac{1}{2}$
۱۰	$aq^2 = \sqrt{aq^3} \qquad aq^4 = 27 \qquad \frac{aq^4}{aq} = q^3 = 27 \qquad q = 3$ $a^2 q^4 = aq^3 \qquad aq = 1$ $a \times 3 = 1 \qquad a = \frac{1}{3}$ $\frac{1}{2} - \frac{1}{3} = \frac{3}{6} - \frac{2}{6} = \frac{1}{6}$