نام و نام خانوادگی ...[illegible]... پاسخنامه تشریحی تکلیف شماره ...۱۷... کلاس ...دهم C [illegible]...

$\{1\}, \{2,3,4\}, \{5,6,7,8,9\}, \{10,11,12,13,14,15,16\}$ $\frac{a+b}{2}=1 \quad \frac{a+b}{2}=3 \quad \frac{a+b}{2}=7 \quad \frac{a+b}{2}=13$ $1=c$ $1, 3, 7, 13, \dots \to a_n = an^2+bn+c$ (+2, +4, +6; +2, +2) $2a=2 \to a=1,\ c=1,\ b=-1$ $a_n = n^2+bn+1,\ a_2 = 4+2b+1=3,\ 2b=-2 \to b=-1$ $\to a_n = n^2-n+1 \to a_9 = 81-9+1 = 73$	۱
$\{1,2,3\}, \{4,5,6,7,8,9,10,11,12\}, \{13,14,15,\dots,39\}, \{40,41,\dots,120\}, \{121,\dots,363\}$ ① ② ③ ④ ⑤ $M_{\text{پنجم}} = \frac{121+363}{2} = 242$	۲
دنباله: $4, 1+a, 2, 2, 1+a, \dots$ مجموع ۱۰ جمله اول $= 4+1+a+2+2+1+a+4+0+\cancel{1}+a+8-\cancel{1} = 22+2a=19 \to 11+a=9.5 \to a=-1.5$ $a_2+a_5+a_8+\dots a_{29} \to a+1+a+1+a+2+a+2+a+2+a+3+a+3+a+3+a+3+a+4=$ $\to 2(a+1)+3(a+2)+4(a+3)+a+4 = 10a+24 = 10\times(-1.5)+24 = 24-15 = 9$	۳ ☆
$a_5 = 14 \quad a_7 = 11.2 \quad a = -14\times\frac{1}{70} = \frac{-1}{5}$ $a_n = \frac{-1}{5}n^2+bn+c$ $a_5 = -\frac{25}{5}+5b+c=14 \to 5b+c=19 \to -5b-\cancel{c}=-19$ $a_7 = \frac{-49}{5}+7b+c = \frac{112}{10} \to 7b+c = \frac{135}{5} \to 7b+\cancel{c}=27 \to 28+c=27$ $2b = 8 \to b=4 \quad c=-1$ $a_n = \frac{-1}{5}n^2+4n-1 \to a_1 = \frac{-1}{5}+4-1 = \frac{14}{5}$ $a_{15} = -\frac{15\times15}{5}+60-1 = -45+60-1 = 14$ $\frac{a_{15}}{a_1} = 14\times\frac{5}{14} = 5$	۴
$a+3d \xrightarrow{+4d} a+7d$ $2a+b \xrightarrow{+5a} 7a+b$ $4d = 5a \to a = \frac{4}{5}d$ $\frac{a_{15}}{d} = \frac{4d}{d} = 4$ $10a+b=0 \to 10\times\frac{4}{5}d+b=0 \to 8d+b=0$ $a_{15} = 15a+b = 15\times\frac{4}{5}d+b = 12d+b = 4d+\underbrace{8d+b}_{=0} = 4d$	۵

$6a_2^2 = 5a_3 a + 3a_2 a$

$a_2^2 \to (a+d)^2 \to a^2+d^2+2ad$, $\quad a_3 a \to (a+2d)a \to a^2+2ad$, $\quad a_2 a \to (a+d)a \to a^2+ad$

$\to 6a^2+6d^2+12ad = 5a^2+10ad+3a^2+3ad$

$\to 2a^2+ad-6d^2=0 \to a^2+ad-12d^2=0$

$\to (a-3d)(a+\frac{4d}{2})=0 \to (2a-3d)(a+2d)=0$ 6

$2a-3d=0 \to \boxed{a=\frac{3}{2}d}$

$a+2d=0 \to \boxed{a=-2d}$

$\Rightarrow \frac{a_4}{d} = \frac{a+3d}{d}$

$\frac{\frac{3}{2}d+3d}{d} = 4.5$

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

$a, b, c \xrightarrow{+d,\ +d} a=b-d,\quad c=b+d$

$b, \frac{a}{2}, \frac{c}{4} \to b, \frac{b-\cancel{d}}{2}, \frac{b+\cancel{d}}{4} \Rightarrow b, \frac{-2b}{2}, \frac{4b}{4} \Rightarrow b, -b, b \qquad \times(-1)\ \times(-1) = r$

غیرمتمایز ✗ $d=0$

✓ $d=3b$ 7

$b^2=ac \to (\frac{b-d}{2})^2 = (\frac{b+d}{4})\times b \to \frac{b^2+d^2-2bd}{4} = \frac{b^2+bd}{4} \to d^2-3bd=0$

$d^2=3bd$

$2r=-2$

$r=-1$

☆

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a, b, c

$3b, 2a, c$

$b^2=ac \to c=\frac{b^2}{a}$

$\frac{3b+c}{2} = 2a \to 3b+c=4a \to \frac{4a}{a} = \frac{3b}{a} + \frac{\frac{b^2}{a}}{a} \to \frac{b^2}{a^2}=r^2$

$\to 4 = 3r+r^2 \to r^2+3r-4=0$

$(r-1)(r+4)=0$ 8

$r=1$ غ ق ق → جملات متمایز

$r=-4$ ✓

$\frac{a_9}{a_6} = r^3 = (\frac{b}{a})^3 \to r^3 = (-4)^3 = -64$

☆

$\frac{ar^5}{a^2r^3} + \frac{ar}{a^2} = 2 \to \frac{ar^2}{a^2} + \frac{ar}{a^2} = 2 \to \underbrace{r^2+ar+\frac{1}{4}a^2}_{(r+\frac{1}{2}a)^2} = \underbrace{2a^2+\frac{1}{4}a^2}_{\frac{9}{4}a^2}$

$\to r+\frac{1}{2}a = \frac{3}{2}a \to r=a$

$\to r+\frac{1}{2}a = -\frac{3}{2}a \to r=-2a$

$\Rightarrow \frac{a^2}{a_2} = \frac{a^2}{ar} = \frac{a}{r}$

$\frac{a}{a}=1$ 9

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

$a_4=x$

$a_3=\sqrt{x}$

$a_5=27$

$b^2=ac \to 27\sqrt{x} = x^2 \to (27)^2x = x^4 \to (3^3)^2 = x^3 \to (3^2)^3 = x^3$

$\to x=9$

$ar^4=27 \to a\times 3^4 = 3^3 \to a=\frac{1}{3}$ 10

$r=\frac{a_5}{a_4} = \frac{27}{9} = 3$

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