نام و نام خانوادگی ...مریم هستی... پاسخنامه تشریحی تکلیف شماره ..۱.۲.. کلاس ...دهم... ریاضی...

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$a_1 = 40$

$a_4 = 61 \to a_1 + 3d = 61 \to 3d = 61 - 40 \Rightarrow 3d = 21 \to d = 7$

$a_n = a_1 + (n-1)d = 40 + (n-1)7 = 208 \to (n-1)7 = 168 \to n-1 = 24 \to n = 25$

۲ *

(129)

$x \div 7 = y$, remainder $3 \to x = 7y + 3$

$100 \leq x < 1000 \to 100 \leq 7y + 3 < 1000$

$97 \leq 7y < 997$

$13,\ldots \leq y < 142,\ldots$

$y \to$ 14 تا 142 $\to$ 129 تا

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$a_2 + a_3 + a_4 = 6 \to (a+d) + (a+2d) + (a+3d) = 6 \to 3a + 6d = 6 \to a + 2d = 2 = a_3$

$a_3 + a_4 + a_5 = 0 \to (a+2d) + (a+3d) + (a+4d) = 0 \to 3a + 9d = 0 \to a + 3d = 0 = a_4$

دنباله $\Leftarrow 6, 4, 2, 0, \ldots$ (تفاضل‌ها: $-2, -2, -2$) $\to$ دنباله خطی $\to -2n + 8$

$a_{17} = -2 \times 17 + 8 = -26$ $a_8 = -2 \times 8 + 8 = -8 \to a_{17} + a_8 = -26 - 8 = -34$

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فاصله‌ها یکسان $\to a_{13} - a_8 = a_8 - a_3 \to 2^{2x} - 3 - 2^{x+1} = 2^{x+1} - 2^x + 1$

$2^{2x} + 2^x = 2 \times 2^{x+1} + 1 + 3 \to 2^{2x} + 2^x = 2^{x+2} + 2^2 \to 2^x(2^x + 1) = 2^2(2^x + 1)$

$2^x = 2^2 \to x = 2$

$a_3 = 2^2 - 1 = 3$

$a_8 = 2^{2+1} = 8$

$a_{13} = 2^{2\times2} - 3 = 13$

$3 + 8 + 13 = 24$

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$a_{12} - a_{10} = 5$

$a_{12} + a_{10} = 25$

$2a_{12} = 30 \to a_{12} = 15$

دنباله: $-35, -30, -25, -20, -15, -10, -5, 0, 5, 10, 15, \ldots$

$a_n = a_1 + (n-1)d = -35 + (n-1)5 \to a_{21} = -35 + 20 \times 5 = 65$

$a_{10} = 10 \to a + 9d = 10 \to a = 10 - 45 = -35$

$\to a_{12} - a_{10} = a + 11d - a - 10d = d = 5$

$a_{11}+a_{12}+a_{13}+a_{14}=\frac{1}{3}(a_{12}+a_{13}+a_{14}+a_{15}+a_{16})$

$a+a+d+a+2d+a+3d+a+4d=\frac{1}{3}(a+5d+a+6d+a+7d+a+8d+a+9d)$

$5a+10d=\frac{1}{3}(5a+35d)\rightarrow 15a+30d=5a+35d\rightarrow 10a=5d\rightarrow 2a=d$

$\frac{a_4}{a_1}=\frac{a+d}{a}=\frac{a+2a}{a}=\frac{3\cancel{a}}{\cancel{a}}=3$ ✓

۶

$t_{n-2}+15=t_1+(n-1)d\rightarrow 15=n-2\rightarrow n=17$

$\hookrightarrow \frac{(n-1)}{2}d=15\rightarrow d=2$

$t_9^2-t_5^2=(t_9-t_5)(t_9+t_5)=(t_1+16+t_1+8)(t_1+8+t_1-2)$

$t_1+8d \quad t_1+4d$

$=(2t_1+24)\times 2\ /\ t_7=t_1+6d\Rightarrow \frac{20t_1+120}{t_1+12}=\frac{10(t_1+12)}{t_1+12}=10$ ✓

☆ ۷

$\frac{8+\sqrt{3}-2+12\sqrt{3}}{12}=d\rightarrow d=\frac{11\sqrt{3}}{11}=\sqrt{3}$ ✓

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$d=\frac{\cancel{30}-2}{\cancel{2}n-2}=\frac{\cancel{30}15}{\cancel{2}(n-1)}$

$a_{n+1}=11$

$a_n=2+(n-1)\times\frac{15}{(n-1)}=17$

$a_{n+1}=a_n+d\Rightarrow 17+\frac{15}{n-1}=11\rightarrow\frac{15}{n-1}=\frac{-6}{1}\rightarrow\frac{15}{2}=n-1\rightarrow n=\frac{-9}{6}\Rightarrow n=\frac{-3}{2}$

☆ ۹

$a_{13}+a_{17}=a_n+a_{n+4}\rightarrow 34=n+n+4\rightarrow 30=2n+4\rightarrow n+2=10\rightarrow n=8$

$a_n=2a_4\rightarrow a_1=2a_2\rightarrow a_1+7d=2a_1+9d\rightarrow 2a_1+2d=0\rightarrow a_1+d=0$

$a_1+d=a_2\}\ a_2=0$ ✓

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