نام و نام خانوادگی ....صبا ایرانی...... پاسخنامه تشریحی تکلیف شماره .... کلاس ....

۱

$t_1 = 40 \qquad d = \frac{61-40}{4-1} = \frac{21}{3} = 7$

$T_4 = 61$

$t_1 + (n-1)d$

$40 + (n-1)7 = 208$

$40 + 7n - 7 = 208$

$7n = 175$

$n = 25$

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$a_1 = 101 \qquad d = 7 \qquad a_n = 997$

$100 \div 7 = 14$, باقیمانده 2

$999 \div 7 = 142$، باقیمانده 5

$a_1 + (n-1)d = 997$

$101 + \underbrace{(n-1)7}_{7n-7} = 997$

$94 + 7n = 997$

$7n = 903$

$n = 129$

۳

$a_{n+1} + a_{n+2} + a_{n+3} = -6n + 12 \rightarrow a_{n+2} = 3(-6n+12)$

$a_{17} + a_8 = ?$

$a_n = -18n + 36 - 2d$

$d = n$ ضریب $\rightarrow d = -18$

$a_n = -18n + 36 + 36 = -18n + 72$

$a_{17} = -306 + 72 = -234$

$a_8 = -144 + 72 = -72$

$\rightarrow -234 - 72 = -306$

۴

$t_3 = 2^x - 1 \qquad t_8 - t_3 = t_{13} - t_8$

$t_8 = 2^{x+1}$

$t_{13} = 2^{2x} - 3$

$2^x = y$

$\Rightarrow 2y - y + 1 = y^2 - 3 - 2y$

$y^2 - 3y - 4 = 0$

$(y-4)(y+1) = 0 \Rightarrow y = 4 \checkmark, \quad y = -1 \times$

$\Rightarrow 2^x = 4$

$\boxed{x = 2}$

$t_3 + t_8 + t_{13} = 3t_8 = 3(2^3) = 24$

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

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

$2t_{12} = 30$

$t_{12} = 15 \rightarrow t_{10} = 10$

$d = \frac{15-10}{2} = \frac{5}{2}$

$t_{21} = t_{10} + 11d \Rightarrow 10 + 11\left(\frac{5}{2}\right) = \frac{20}{2} + \frac{55}{2} = \frac{75}{2}$

۶

$t_1+t_2+t_3+t_4+t_5 = \frac{1}{3}(t_6+t_7+t_8+t_9+t_{10})$

$\cancel{5}t_3 = \frac{1}{3}(\cancel{5}t_8) \to t_8 = 3t_3 \to t_1+7d = 3t_1+6d$ $\quad t_2 = 3t_1$

$2t_1 = d \to t_2 = t_1 + \underset{2t_1}{\cancel{d}}$

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$t_n = t_{n-3}+15 \longrightarrow t_n - t_{n-3} = 15 \to 3d = 15 \to d = 5$

$t_9^2 - t_5^2 = 8t_7 \to \underbrace{(\overset{t_5+4d}{t_9} - \overset{t_5}{t_5})}_{\underbrace{4d}_{20}}\underbrace{(t_9+t_5)}_{2t_7} = 8t_7 = 40t_7$

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$t_1 = 2(1-6\sqrt{3})$

$t_n = 2+\sqrt{3}$

$t_{n+13} = 2(1-6\sqrt{3})$ $\Rightarrow t_{n+13} - t_n = 13d$

$\cancel{2} - 12\sqrt{3} - \cancel{2} - \sqrt{3} = 13d$

$-13\sqrt{3} = 13d$

$d = -\sqrt{3}$

۹

$t_n = 11$

$t_1 = 2$

$t_m = 32$ $\quad t_m - t_1 \Rightarrow \frac{\overset{30}{\cancel{t_m - t_1}}}{\underset{4n-3}{m-1}} = d$

$t_1 + (n-1)d = 11$

$2 + (n-1)\frac{30}{4n-3} = 11$

$2 + \frac{30n - 30}{4n-3} = 11$

$\frac{30n-30}{4n-3} = 9 \to 36n - \cancel{27} = 30n - 30$

$6n = -12 \quad n = -2$

غیرقابل قبول

صورت مسئله اشکال دارد!!

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$t_n + t_{n+4} = t_3 + t_{17}$ $\quad n + n + 4 = 20$

$2n = 16$

$n = 8$

$t_n = 3(t_{\frac{n}{2}})$

$t_m = 0$

$m = ?$

$t_8 = 3(t_4)$

$t_4 + 4d = 3t_4 \to t_4 = 2d \to \cancel{t_4} = t_1 + 3d$

$t_m = t_1 + (\cancel{n+1}m-1)d$

$0 = -d + (m-1)d$

$0 = \underset{\neq 0}{d}(m-2) \to m = 2$