نام و نام خانوادگی ....صدرا زارعی.... پاسخنامه تشریحی تکلیف شماره ...۱۳... کلاس ....دهم [illegible] A....

۱

$d = \dfrac{61-40}{4-1} = 7$

$a_n = 7n + b \xrightarrow{n=1} 40 = 7 + b \rightarrow b = 33$

$a_n = 7n + 33 \xrightarrow{n=x} 208 = 7x + 33 \rightarrow x = \dfrac{175}{7} = \boxed{25}$

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$a_n = 7n+3 \longrightarrow 100 \leqslant 7n+3 \leqslant 1000 \longrightarrow \dfrac{97}{7} \leqslant n \leqslant \dfrac{997}{7} \longrightarrow 13/1... \leqslant n \leqslant 142/1...$

$\longrightarrow n = \{14, 15, 16, \dots, 142\} \longrightarrow$ تعداد $= \dfrac{142-14}{1} + 1 = \boxed{129}$ عدد

۳

$a_{n+1} + a_{n+2} + a_{n+3} = -6n+12 \longrightarrow 3a_{n+2} = -6n+12 \longrightarrow a_{n+2} = -2n+4$

$a_{17} + a_8 = -30 + 4 - 12 + 4 = \boxed{-34}$

۴

$2^{2x} - 3 + 2^x - 1 = 2 \times 2^{x+1} \longrightarrow 2^x \times 2^x + 2^x = 4 \times 2^x + 4 \longrightarrow 2^x \cancel{(2^x+1)} = 4\cancel{(2^x+1)}$

$\longrightarrow 2^x = 4 \longrightarrow x = 2$

$\Rightarrow 2^{2x} - 3 + 2^{x+1} + 2^x - 1 = 16 - 3 + 8 + 4 - 1 = \boxed{24}$

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$a_{12} = \dfrac{25+5}{2} = 15$

$a_{10} = \dfrac{25-5}{2} = 10$

$\longrightarrow d = 2/5$

$a_{10} + 11d = 10 + 27/5 = \boxed{37/5}$

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$a_1+a_2+a_3+a_4+a_5=\frac{1}{3}(a_6+a_7+a_8+a_9+a_{10}) \to 5a_3=\frac{1}{3}(5a_8)$ $\to a_3=\frac{1}{3}(a_3+5d) \to \frac{2a_3}{3}=\frac{5}{3}d \to 2a_3=5d \to a_3=2.5d$ $\frac{a_2}{a_1}=\frac{a_3-d}{a_3-2d}=\frac{2.5d-d}{2.5d-2d}=\frac{1.5d}{0.5d}=$ $\boxed{\text{برابر } 3}$	۶
$t_n=t_{n-3}+15 \to t_n-t_{n-3}=15 \to 3d=15 \to d=5$ $\frac{t_9^2-t_5^2}{t_7}=\frac{(t_9+t_5)(t_9-t_5)}{t_7}=\frac{(t_7+t_7)(20)}{t_7}=$ $\boxed{\text{برابر } 40}$	۷
$d=\frac{2+\sqrt{3}-2+12\sqrt{3}}{13}=\frac{\cancel{13}\sqrt{3}}{\cancel{13}}=\boxed{\sqrt{3}}$	۸
$\frac{32-2}{4n-3+1}=\frac{11-2}{n-1+1} \to \frac{30}{4n-2}=\frac{9}{n} \to 30n=36n-18$ $\to \boxed{n=3}$	۹
$a_3+a_{17}=a_n+a_{n+4} \Longrightarrow n+n+4=20 \to n=8$ $a_8=3a_4 \to 3a_4-a_4=4d \to a_4=2d$ $\quad \boxed{a_4-2d=a_2}$ جمله دوم $\to a_4+(x)\frac{a_4}{2}=0 \to a_4(1+\frac{x}{2})=0$ a_4 غیرصفر $\quad \to 1+\frac{x}{2}=0 \to x=-2$	۱۰

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