نام و نام خانوادگی ...حسین لطیفی... پاسخنامه تشریحی تکلیف شماره .... کلاس ......AA......

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$a_1 = 40 \qquad a_4 = 61$

$d = \frac{a_4 - a_1}{4-1} = \frac{61-40}{3} = 7$

$a_n = 40 + (n-1)7 \Rightarrow 208 = 40 + 7n - 7 \Rightarrow 175 = 7n \rightarrow n = 25$

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$a_n = 7n+3 \qquad 99 < 7n+3 < 1000$

$a_{14} = 101 \qquad a_{142} = 994$

تعداد $= 142 - 14 + 1 = 129$ تا

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

$a_8 = a_{6+2} = -2\times 6 + 4 = 8$

$a_{17} = a_{15+2} = -2\times 15 + 4 = 26$

$a_8 + a_{17} = 8 + 26 = 34$

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$a_8 = \frac{a_3 + a_{13}}{2} \Rightarrow 2\times 2^{x+1} = 2^x - 1 + 2^{2x} - 3 \Rightarrow 4\times 2^x = 2^x(2^x+1) - 4 \Rightarrow 4(2^x+1) = 2^x(2^x+1)$

$4 = 2^x \Rightarrow x = 2$

$S = 3\times 2^{x+1} = 3\times 2^3 = \boxed{24}$

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$\begin{cases} a_{10} - a_{12} = 5 \\ a_b + a_{12} = 25 \end{cases} \Rightarrow 2a_{10} = 30 \Rightarrow a_{10} = 15 \text{ و } a_{12} = 10$

$d = \frac{a_{10} - a_{12}}{10-12} = \frac{5}{-2} = -2/5$

$a_{21} = a_{12} + 9d = 10 + 9(-2/5) = \boxed{-12/5}$

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$$a_1+a_2+a_3+a_4+a_5=5a_3$$

$$a_6+a_7+a_8+a_9+a_{10}=5a_8$$

$$5a_3=\frac{5a_8}{3}\Rightarrow 3(a_1+2d)=a_1+7d\Rightarrow 2a_1=5d\Rightarrow a_1=2/5d$$

$$\frac{a_2}{a_1}=\frac{a_1+d}{a_1}=\frac{3/5d}{2/5d}=\frac{7}{5}$$

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$$t_n=t_n-2d+15\Rightarrow 2d=15\Rightarrow d=5$$

$$t_5=t_1+4d=t_1+20$$

$$t_7=t_1+6d=t_1+30$$

$$t_9=t_1+8d=t_1+40$$

$$t_9^2-t_5^2=(t_9+t_5)(t_9-t_5)=$$

$$(2t_1+60)\times 20=40t_1+1200$$

$$\frac{t_9^2-t_5^2}{t_7}=\frac{40t_1+1200}{t_1+30}=\frac{40(t_1+30)}{t_1+30}=\boxed{40}$$

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$$2-12\sqrt{3},\ \underbrace{\dots}_{\text{عدد }12},\ 2+\sqrt{3}$$

(1) (14)

$$d=\frac{a_{14}-a_1}{14-1}=\frac{2+\sqrt{3}-(2-12\sqrt{3})}{13}=\frac{13\sqrt{3}}{13}=$$

$$d=\sqrt{3}$$

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$$2,\ \dots,11,\ \dots,32$$

(1) $(n+1)$ $(4n-1)$

$$\begin{cases} d=\frac{11-2}{n+1-1}=\frac{9}{n} \\ d=\frac{32-11}{4n-1-n-1}=\frac{21}{3n-2}\end{cases}\Rightarrow \frac{9}{n}=\frac{21}{3n-2}\Rightarrow \frac{7}{3}n=3n-2\Rightarrow$$

$$\frac{2}{3}n=2\Rightarrow n=\boxed{3}$$

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$$a_3+a_{17}=a_n+a_{n+4}\xrightarrow{\text{زنالحسابی}} 3+17=n+n+4\Rightarrow 2n+4=20\Rightarrow$$

$$n=8$$

$$a_8=3a_4\Rightarrow a_4+4d=3a_4\Rightarrow a_4=2d\Rightarrow a_1+3d=2d\Rightarrow a_1=-d$$

$$a_n=-d+(n-1)d\Rightarrow a_n=d(n-2)\Rightarrow 0=d(n-2)\Rightarrow n-2=0\Rightarrow n=\boxed{2}$$