نام و نام خانوادگی: محمدرضا ابراهیمی .... پاسخنامه تشریحی تکلیف شماره ۳ | کلاس دهم ریاضی B

۱

$t_1 = 40 \,\Big\}\, t_4 = 61 \,\Big\}\, t_n = 208$ $\qquad n = 25$

$t_4 - t_1 = 3d \Rightarrow 3d = 21 \Rightarrow d = 7$

$t_n = 7n + 33$

$7n + 33 = 208 \Rightarrow 7n = 175 \Rightarrow$

$$\begin{array}{r|l} 175 & 7 \\ \hline -14 & 25 \\ 35 & \\ -35 & \\ 0 & \end{array}$$

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$$\begin{array}{r|l} 98 & 7 \\ \hline -98 & 14 \\ 0 & \end{array}$$
بخش‌پذیر $\Leftarrow$ $\Rightarrow 98 + 3 = 101$

$$\begin{array}{r|l} 994 & 7 \\ \hline -994 & 142 \\ 0 & \end{array}$$
بخش‌پذیر است.

$101 \leq 7n + 3 < 997 \Rightarrow 98 \leq 7n < 994$

$14 \leq n < 142$

$\Leftarrow$

$142 - 14 = 128$

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$\boxed{3a_n + 9d} = -6n + 12 \Rightarrow a = -2,\ d = +2 \Rightarrow t_n = -2n + 2$

$t_n = an + d \Rightarrow a_{n+1} + a_{n+2} + a_{n+3} = an + an + an + d + 2d = \boxed{3an + 3d}$

$a_{17} = (-2 \times 17) + 2 = -32$

$a_8 = (-2 \times 8) + 2 = -14$

$\Rightarrow a_{17} + a_8 = -32 - 14 = \boxed{-46}$

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$t_3 = a_1 + 2d = 2^{x-1}$

$t_8 = a_1 + 7d = 2^{x+1}$

$t_{13} = a_1 + 12d = 2^{2x} - 3$

$\Rightarrow t_3 + t_{13} = \underbrace{t_8 + t_8}_{2t_8} \Rightarrow 2(2^{x+1}) = 2^{x+2}$

$2^{x-1} + 2^{2x} - 3 = 2^{x+2} \Rightarrow 2^x + 2^{2x} - 4 = 2^{x+2} \Rightarrow 2^x + 2^{2x} - 2^{x+2} = 4$

$2^x(2^x - 3) = 4 \Rightarrow 2^x = 4 \Rightarrow \boxed{x = 2} \Longleftarrow 2^x(1 + 2^x - 4) = 4$

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

$a_{12} + a_{10} = 2a_1 + \underbrace{20d}_{50} = 25 \Rightarrow 2a_1 = -25 \Rightarrow a_1 = \frac{-25}{2}$

$a_{21} = a_1 + 20d \Rightarrow \frac{-25}{2} + 50 = \boxed{\frac{75}{2}}$

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۵ جمله‌ی دوم ۲۰ ۵ جمله‌ی اول ۱=

$S_1 = 5\,\dfrac{a_1 + a_5}{2} = 5(a_1 + 2d)$ (a_3)

$S_2 = 5\,\dfrac{a_6 + a_{10}}{2} = 5(a_1 + 7d)$

$S_1 = \frac{1}{3} S_2 \Rightarrow 5(a_1 + 2d) = \frac{5}{3}(a_1 + 7d)$

$a_1 + 2d = \frac{1}{3}(a_1 + 7d) \times 3$

$3a_1 + 6d = a_1 + 7d \Rightarrow 2a_1 = d$

$\dfrac{a_2}{a_1} = \dfrac{3a_1}{a_1} = \boxed{3}$ جواب برابر

$a_2 = a_1 + d = 3a_1$

$t_n = t_{n-3} + 15 \Rightarrow t_n = t_n - 3d + 15$

$t_4 = t_1 + 15$, $t_4 = t_1 + 3d \Rightarrow 3d = 15 \Rightarrow d = 5$

$4d = 20$

$\cancel{(t_9 + t_5)}\cancel{(t_9 - t_5)} = 1400$

$\dfrac{2t_1 + 12d}{70}$

$t_7 = t_1 + 6d = 35 \Rightarrow \dfrac{1400}{35} =$ برابر ۴۰ ۷

$t_1 = ? \Rightarrow t_3 = 15 \Rightarrow t_3 = t_1 + 2d \Rightarrow 15 = t_1 + 10 \Rightarrow t_1 = \boxed{5}$

$t_1 = 2(1 - 6\sqrt{3}) = 2 - 12\sqrt{3}$

$t_{14} = t_1 + 13d \Rightarrow 2 + \sqrt{3} = 2 - 12\sqrt{3} + 13d = 13\sqrt{3}$

$t_{14} = 2 + \sqrt{3}$ ۸

$d = \sqrt{3}$

$d = \dfrac{b - a}{(4n - 3) + 1} = \dfrac{32 - 2}{4n - 2} = \dfrac{30}{4n - 2}$ $\Big\}$ $t_1 = 2$ و $4n - 3$ تعداد واسطه و $t_n = 32$

$t_{n+1} = t_1 + (n + 1 - 1)d \Rightarrow nd = 9$

$nd = \dfrac{30n}{4n - 2} = 9$ ۹

$2,\ 11,\ 32$ ($t_1 \xrightarrow{+9} t_{n+1} \xrightarrow{+21}$)

$30n = 36n - 18$

$6n = 18 \Rightarrow n = \boxed{3}$

$a_n + a_{n+4} = a_3 + a_{17}$ $\quad (a + (n-1)d) + (a + (n+3)d) = (a + 2d) + (a + 16d)$

$(a + nd - d) + (a + nd + 3d) = (a + 2d) + (a + 16d)$

$2a + (2n + 2)d = 2a + 18d \Rightarrow (2n + 2)d = 18d$

$2n + 2 = 18 \Rightarrow 2n = 16 \Rightarrow n = \boxed{8}$