نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۱۰ کلاس ۸

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$t_n = 2n^2 - 1 \rightarrow 2, 11, 23, 41, 65, 95, 131$

$t_n = \frac{2n+1}{n+2} \rightarrow \frac{5}{3}, \frac{7}{4}, \frac{9}{5}, \frac{11}{6}, \frac{13}{7}, \frac{15}{8}, \frac{17}{9}$

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الف) $t_n = \frac{(-1)^n}{\sqrt{n+2}} \rightarrow \frac{(-1)^{12}}{\sqrt{12+2}} = \frac{-1}{4} = -\frac{1}{4}$

ب) $t_n = 2n - \left[\frac{n}{2}\right] \rightarrow 2(12) - \left[\frac{12}{2}\right] = 24 - 2 = 22$

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الف) $t_n = 2n - 10 \Rightarrow 2n - 10 < 0 \Rightarrow 2n < 10 \rightarrow n < 5 \rightarrow 1, 2, 3, 4 \rightarrow$ ۴ تا

ب) $t_n = n^2 - 12n + 20 \rightarrow (n-10)(n-2) \rightarrow$

	2		10	
$n-10$	$-$	$-$	0	$+$
$n-2$	0	$+$	$+$	$+$

$\Rightarrow 2 < n < 10 \rightarrow 3, 4, 5, 6, 7, 8, 9 \rightarrow$ ۷ تا

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الف) $t_n = 2n - 18 \Rightarrow 2n - 18 \leq 0 \Rightarrow 2n \leq 18 \Rightarrow n \leq 9 \rightarrow \begin{cases} 1, 2, 3, 4, 5, 6, 7, 8, 9 \\ 2, 4, 6, 8, 10, 12, 14, 16, 18 \end{cases} \rightarrow$ ۹ تا

ب) $t_n = n^2 - 12n + 27 = (n-3)(n-9) \rightarrow$

	3		9	
$n-3$	$-$	0	$+$	$+$
$n-9$	$-$	$-$	0	$+$

$\Rightarrow 3 \leq n \leq 9 \rightarrow \begin{cases} 3, 4, 5, 6, 7, 8, 9 \\ 9, 16, 25, 36, 49, 64, 81 \end{cases} \rightarrow$ ۷ تا

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$t_3 = 7 \rightarrow a(3) + b = 7 \Rightarrow 7 = 3a + b$
$t_9 = 22 \rightarrow a(9) + b = 22 \Rightarrow 22 = 9a + b$

$\Rightarrow 15 = 6a \Rightarrow a = 3$
$3(3) + b = 7 \Rightarrow b = -2$

$t_n = 3n - 2$

$t_2 = 3(2) - 2 = 4$

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ب) $t_n = n^2 - 6n + 2 \rightarrow \frac{-b}{2a} = \frac{6}{2} = 3$ $\quad t_3 = (3)^2 - 6(3) + 2 = \boxed{-7}$

الف) $t_n = n^2 + 4n + 1 \rightarrow \frac{-b}{2a} = \frac{-4}{2} = -2 < n \Rightarrow n = 1$ $\quad t_1 = (1)^2 + 4(1) + 1 = \boxed{6}$

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$t_n = -2, -7, -12, -17, -22, \ldots$

$t_0 = 3, 8, 13, 18, 23, \ldots$

$-3, -2, -1, +1, +2$

$+5, +5, +5, +5$

$\frac{a}{2} = 1$

$t_n = an^2 + bn + c \Rightarrow t_n = n^2 + bn + 1 \Rightarrow t_1 = (1)^2 + b(1) + 1 = -4$

$t_0 = 1$

$1 + b + 1 = -4 \Rightarrow b = -6$

$\Rightarrow t_n = n^2 - 6n + 1$

$t_{10} = (10)^2 - 6(10) + 1 = 100 - 60 + 1 = \boxed{41}$

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$t_n = 1, 6, 13, 22, 33, \ldots$

$5, 7, 9, 11$

$2, 2, 2$

$t_0 = -1$

$t_n = an^2 + bn + c$

$t_0 = -1 \Rightarrow c = -1$

$t_n = 2n^2 + bn - 1$

$t_1 = -4 = 2(1)^2 + b(1) - 1$

$2 \quad b \quad -1 \rightarrow 2 + b - 1 = -4 \Rightarrow 1 + b = -4 \Rightarrow b = -5$

$\Rightarrow \boxed{t_n = 2n^2 - 5n - 1}$

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$a + 2 \leq 2a + 1 \Rightarrow a \geq 1 \Rightarrow D_a = \boxed{[1, +\infty)}$

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الف) $\left(\frac{99 - 3}{3}\right) + 1 = 33$

ب) $\left(\frac{90 - 0}{5}\right) + 1 = 19$

ج) $\left(\frac{90 - 10}{10}\right) + 1 = 9$

د) $n(A \cup B) = n(A) + n(B) - n(A \cap B) \rightarrow 33 + 19 - 9 = \boxed{43}$