

الف) $t_n = n^2 - 1 \rightarrow 2, 11, 24, 47, 74 \checkmark$

(1)

ب) $t_n = \frac{n+1}{n+5} \rightarrow \frac{2}{8}, \frac{3}{9}, 1, \frac{4}{11}, \frac{11}{9} \checkmark$ (2)

الف) $t_{1,2} = \frac{-1}{5} = \frac{-1}{5} \checkmark$ (3)

(2)

ب) $t_{1,2} = 2 \times 1^2 - 3 = -1 \checkmark$ (4)

الف) $2n-1 < 0 \rightarrow n < \frac{1}{2} \rightarrow \text{لا يوجد} \checkmark$ (5) $(n-1)(n-1) < \frac{1}{2} - \frac{1}{2}$
 ب) $n^2 - 14n + 40 < 0 \rightarrow \frac{40}{14} - \frac{40}{14} \rightarrow 2 < n < 10 \rightarrow \text{لا يوجد} \checkmark$ (6)

الف) $2n-14 \leq 0 \rightarrow n \leq 7 \rightarrow \text{لا يوجد} \checkmark$ (7)

(3)

ب) $n^2 - 14n + 40 \leq 0 \rightarrow \frac{40}{14} - \frac{40}{14} \rightarrow [2, 10] \rightarrow \text{لا يوجد} \checkmark$ (8)

$d = \frac{24-1}{9-4} = 5 \rightarrow t_r = V - 5 = 5 \checkmark$ (9)

(4)

الف) $n^2 - 9n + 4 = -1 \rightarrow n^2 - 9n + 5 = 0 \rightarrow n = 3 \checkmark$ (10)

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ب) $n^2 + 5n + 1 = -4 \rightarrow n^2 + 5n + 5 = 0 \rightarrow (n+5)^2 = 0 \rightarrow n = -5 \rightarrow \text{لا يوجد} \checkmark$
 $\Rightarrow n = 1$ (11)

$1 - 5, -1, 1, 21 \Rightarrow a = 1, c = 1 \quad 2 + b = -5 \rightarrow b = -7$ (12)

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$\Rightarrow t_n = n^2 - 4n + 1 \checkmark$ (13)

$1 - 5, -1, 1, 21 \rightarrow a = 2, c = -1 \quad b - 1 = -5 \rightarrow b = -4$ (14)

(5)

$\Rightarrow t_n = 2n^2 - n - 1 \checkmark$ (15)

① $a + 5 = 2a + 1 \rightarrow a = 4$ (1) $\rightarrow a \geq 3$

② $a + 2 < 2a + 1 \rightarrow a > 1$

الف) $\frac{99 - 3}{3} + 1 = 33$

ب) $\frac{100 - 8}{8} + 1 = 12.5$ (110)

ج) $\frac{90 - 18}{18} + 1 = 4 \rightarrow 4 + 3 = 7$

$\Rightarrow n(A \cup B) = n(A) + n(B) - n(A \cap B) \Rightarrow 33 + 12.5 - 1 = 44.5$

44.5