

الف) $t_n = 1^n n^{1^n} - 1 \rightarrow$ $n=1 \rightarrow 1, n=2 \rightarrow 11, n=3 \rightarrow 24, n=4 \rightarrow 47, n=5 \rightarrow 74, \dots$

ب) $t_n = \frac{2n+1}{n+1^2} \rightarrow$ $n=1 \rightarrow \frac{3}{2}, n=2 \rightarrow \frac{5}{4}, n=3 \rightarrow \frac{7}{8}, n=4 \rightarrow \frac{9}{16}, n=5 \rightarrow \frac{11}{25}, \dots$

الف) $t_n = \frac{(-1)^n}{\sqrt{n+1^2}}$ $t_{13} = \frac{(-1)^{13}}{\sqrt{14}} = \frac{-1}{\sqrt{14}}$

ب) $t_n = 2n - \left\lfloor \frac{n}{2} \right\rfloor \rightarrow t_{13} = 24 - \left\lfloor \frac{13}{2} \right\rfloor = 21$

الف) $t_n = 2n - 10$ $n=5$ $n=1, 2, 3, 4 \rightarrow$ صده ۴

ب) $t_n = n^2 - 14n + 40 = (n-4)(n-10)$ $n=5, 6, 7, 8, 9 \rightarrow$ صده ۵

الف) $t_n = 2n - 12$ $n=6$ $n=1, 2, 3, 4, 5, 7, 8, 9 \rightarrow$ صده ۸

ب) $t_n = n^2 - 12n + 27 = (n-3)(n-9)$ $n=3, 4, 5, 6, 7, 8, 9 \rightarrow$ صده ۷

$t_4 = 7$ $t_9 = 22$ $t_3 = t_4 - 01 = 7 - 1^3 = 6$ $15 = 01 \rightarrow 01 = 1^2$

$$a) t_n = n^2 - 4n + 2$$

$$\frac{-b}{2a} = \frac{4}{2} = 2 \rightarrow 9 \text{ mm}$$

$$\rightarrow t_2 = -2$$

$$9 - 11 + 2 = -2$$

(5)

$$b) t_n = n^2 + kn + 1$$

$$\frac{-b}{2a} = \frac{-k}{2} = -2 \rightarrow k = 4$$

$$1 \rightarrow -3 \rightarrow -1 \rightarrow 1 \rightarrow 3 \rightarrow 5 \rightarrow 7 \rightarrow 9 \rightarrow 11 \rightarrow 13 \rightarrow 15 \rightarrow 17 \rightarrow 19 \rightarrow 21 \rightarrow 23 \rightarrow 25 \rightarrow 27 \rightarrow 29 \rightarrow 31 \rightarrow 33 \rightarrow 35 \rightarrow 37 \rightarrow 39 \rightarrow 41 \rightarrow 43 \rightarrow 45 \rightarrow 47 \rightarrow 49 \rightarrow 51 \rightarrow 53 \rightarrow 55 \rightarrow 57 \rightarrow 59 \rightarrow 61 \rightarrow 63 \rightarrow 65 \rightarrow 67 \rightarrow 69 \rightarrow 71 \rightarrow 73 \rightarrow 75 \rightarrow 77 \rightarrow 79 \rightarrow 81 \rightarrow 83 \rightarrow 85 \rightarrow 87 \rightarrow 89 \rightarrow 91 \rightarrow 93 \rightarrow 95 \rightarrow 97 \rightarrow 99$$

$$1a = 1 \rightarrow a = 1$$

$$c = 1$$

$$n=1 \rightarrow a+b+c = 1+1+b = -2$$

$$b = -2$$

(5)

$$a_n = n^2 - 4n + 1$$

$$a_{10} = 100 - 40 + 1 = 61$$

$$1 \rightarrow 3 \rightarrow 5 \rightarrow 7 \rightarrow 9 \rightarrow 11 \rightarrow 13 \rightarrow 15 \rightarrow 17 \rightarrow 19 \rightarrow 21 \rightarrow 23 \rightarrow 25 \rightarrow 27 \rightarrow 29 \rightarrow 31 \rightarrow 33 \rightarrow 35 \rightarrow 37 \rightarrow 39 \rightarrow 41 \rightarrow 43 \rightarrow 45 \rightarrow 47 \rightarrow 49 \rightarrow 51 \rightarrow 53 \rightarrow 55 \rightarrow 57 \rightarrow 59 \rightarrow 61 \rightarrow 63 \rightarrow 65 \rightarrow 67 \rightarrow 69 \rightarrow 71 \rightarrow 73 \rightarrow 75 \rightarrow 77 \rightarrow 79 \rightarrow 81 \rightarrow 83 \rightarrow 85 \rightarrow 87 \rightarrow 89 \rightarrow 91 \rightarrow 93 \rightarrow 95 \rightarrow 97 \rightarrow 99$$

$$1a = 1$$

$$a = 1$$

$$a_n = n^2 - 4n + 1 \rightarrow a_n = n^2 - 4n + 1 - n$$

$$1 - 4 + b = -2$$

$$b = -1$$

$$= n^2 - 5n + 1$$

(5)

$$(-\infty, a+k] \supset [k+1, +\infty)$$

$$\emptyset \subseteq \{a, a+1, a+2, \dots\}$$

$$k+1 > a+k$$

$$a > 1 \rightarrow a = [2, +\infty)$$

(5)

$$a \leq 1 \dots \mid a \in \mathbb{N}$$

$$A = \{1, 2, 3, \dots, 99\} \rightarrow n = \frac{99-1}{1} + 1 = 99$$

$$B = \{1, 2, 3, \dots, 100\} \rightarrow \frac{100-1}{1} + 1 = 100$$

$$A \cap B = \{1, 2, 3, \dots, 99\} \rightarrow \frac{99-1}{1} + 1 = 99$$

$$n(A \cup B) = n(A) + n(B) - n(A \cap B) = 99 + 100 - 99 = 100$$

(5)

الف ٣٣

ب ١٤

ج ١٤

د ١٤