

الف) $t_n = 3n^2 - 1 \rightarrow 2, 11, 24, 47, 74$ ✓

(۲)

ب) $t_n = \frac{3n+1}{n+4} \rightarrow \frac{3}{4}, \frac{5}{6}, \frac{7}{8} = 1, \frac{9}{8}, \frac{11}{9}$ ✓

الف) $t_n = \frac{(-1)^n}{\sqrt{n+3}} \rightarrow \frac{-1}{\sqrt{14}} = -\frac{1}{\sqrt{14}}$ ✓

(۱)

ب) $t_n = 2n - \left[\frac{n}{2} \right] \rightarrow 24 - \left[\frac{13}{2} \right] = 24 - 6 = 18$
 $24 - 6 = 18$

الف) $t_n = 2n - 1 \rightarrow 1, 3, 5, 7, 9$ ✓

ب) $t_n = n^2 - 16n + 64 \rightarrow t_n = (n-8)(n-16) \rightarrow 2, 4, 6, 8, 10 \rightarrow$
 $\frac{2}{+} \frac{4}{+} \frac{6}{-} \frac{8}{-} \frac{10}{+}$ ✓

(۲)

الف) $t_n = 2n - 14 \rightarrow 1, 3, 5, 7, 9$ ✓

ب) $t_n = n^2 - 12n + 36 \rightarrow t_n = (n-6)(n-6) \rightarrow \frac{9-6}{1} + 1 = 4$
 $\frac{3}{+} \frac{6}{+} \frac{9}{-} \frac{12}{-} \frac{15}{+}$ ✓

(۲)

$t_n a_8 = 7$

$t_n a_9 = 22 \rightarrow a_9 = a_8 + 2d \rightarrow a_9 = 7 + 2d \rightarrow 2d = 15 \rightarrow d = \frac{15}{2}$
 $a_8 = a + 7d \rightarrow a_8 = -2 + 7 \times \frac{15}{2} = \frac{103}{2}$

$a_8 = a + 7d$

$a_8 = -2 + 7 \times \frac{15}{2} = \frac{103}{2}$ ✓

(۲)

$$1) t_n = n^2 - 4n + 2$$

$$① \rightarrow 1 - 4 + 2 = -1$$

$$② \rightarrow 4 - 12 + 2 = -6$$

$$③ \rightarrow 9 - 18 + 2 = -7$$

$$④ \rightarrow 16 - 24 + 2 = -6$$

$$-1, -4, -9, -16, \dots$$

✓
سلسلة

$$1) t_n = n^2 + 6n + 1$$

$$① \rightarrow 1 + 6 + 1 = 8$$

$$② \rightarrow 4 + 12 + 1 = 17$$

$$8, 17, \dots$$

✓
سلسلة

②

$$t_n = -1, -4, -9, -16, -25, \dots$$

$$ra = 2 \quad a = 1$$

$$1x^2 + bx + c \rightarrow 1 \times 1 + b \times 1 + 1 = -1$$

$$\rightarrow a = 1 \quad b = -2 \quad c = 1$$

$$\rightarrow (1 \times 1) + (-2 \times 1) + 1 = -1$$

$$\begin{array}{cccccc} (0) & (1) & (2) & (3) & (4) \\ 1 & -1 & -4 & -9 & -16 \\ \xrightarrow{-2} & \xrightarrow{-2} & \xrightarrow{-2} & \xrightarrow{-2} & \xrightarrow{-2} \\ -2 & -4 & -6 & -8 & -10 \\ \xrightarrow{+1} & \xrightarrow{+1} & \xrightarrow{+1} & \xrightarrow{+1} & \xrightarrow{+1} \\ -1 & -3 & -5 & -7 & -9 \end{array}$$

②

$$t_n = -1, -4, -9, -16, -25, \dots$$

$$ra = 2 \quad a = 2$$

$$2x^2 + bx + c \rightarrow (2 \times 1) + b \times 1 + c = -1$$

$$\rightarrow a = 2 \quad b = -1 \quad c = -1$$

$$\rightarrow 2x^2 - 1x - 1$$

$$\begin{array}{cccccc} (0) & (1) & (2) & (3) & (4) \\ -1 & -4 & -9 & -16 & -25 \\ \xrightarrow{+1} & \xrightarrow{+1} & \xrightarrow{+1} & \xrightarrow{+1} & \xrightarrow{+1} \\ 0 & -3 & -8 & -15 & -24 \\ \xrightarrow{+2} & \xrightarrow{+2} & \xrightarrow{+2} & \xrightarrow{+2} & \xrightarrow{+2} \\ 2 & -1 & -6 & -13 & -22 \end{array}$$

②

$$(-\infty, a + \epsilon] \cap [ra + 1, +\infty) \rightarrow a + \epsilon = ra + 1$$

$$a = 2$$

مجموعة
تقاطع

$$\rightarrow ra + 1 \geq a + \epsilon$$

$$\rightarrow [2, +\infty)$$

②

$$الف) 22 \checkmark$$

$$\rightarrow 19 \quad B = \left[\frac{1}{\infty} \right] = 2$$

$$ج) 4 \checkmark$$

$$د) (22 + 19) - 4 = 37 \quad n(A \cup B) = n(A) + n(B) - n(A \cap B)$$

$$37 + 20 - 4 = 53$$

①