

$$t_n = \underbrace{0}_{+F}, \underbrace{9}_{+F}, \underbrace{13}_{+F}, 17, \dots$$

①

$$t_n = F_{n-1} \quad \text{و} \quad t_n = t_1 + (n-1)d = 0 + (n-1)F \Rightarrow t_n = F_{n+1} \quad (\text{الف})$$

$$t_{10} = F \times 10 + 1 = 41$$

ب.

$$t_n = 4, 10, 16, 22, \dots$$

②

$$S = \frac{n}{2} (2a_1 + (n-1)d) = \frac{10}{2} (2 \times 4 + 9 \times 6) = \frac{10}{2} \times 58 = 290 \quad (\text{الف})$$

$$t_n \Rightarrow F_{n+2}$$

$$(\text{ب} \rightarrow 29, 35, 41, 47 \rightarrow t_{19} = F \times 19 + 2 = 111 \quad (\text{ب}))$$

$$\rightarrow \frac{F}{2} (111 + 135) = 1470 \quad t_{12} = F \times 12 + 2 = 138$$

$$S = \frac{n}{2} (a_{11} + a_{12})$$

③

$$1 + \sqrt{3}, 2, 3 - \sqrt{3}, \dots$$

$$d = 2 - 1 - \sqrt{3} = 1 - \sqrt{3} \rightarrow a_n = a_1 + (n-1)d \rightarrow 1 + \sqrt{3} + (n-1)(1 - \sqrt{3})$$

$$a_n = a_1 + r d \rightarrow a_{10} = a_1 + r d \quad a_{10} = a_1 + r d \quad a_1 - r d = r d$$

$$a_{10} = a_1 + r d$$

$$2 \times (1 - \sqrt{3}) = 2 - 2\sqrt{3}$$

$$a_n = 0^{2x}, 1 \times 10^{2x}, 0^{2x} \rightarrow 1 \times 10^{2x} = 0^{2x} \Rightarrow$$

$$1 \times 10^{2x} = 0^{2x} \Rightarrow 10^{2x} = 0^{2x} \quad (10^{2x} = 0^{2x}) \Rightarrow 10^{2x} = 0^{2x} \quad (10^{2x} = 0^{2x})$$

$$b_n = x, y, z$$

$$1 \times 10^{2x} + 0^{2x} \times 1 = 0^{2x}$$

$$10^{2x} = 0^{2x} \Rightarrow 10^{2x} = 0^{2x}$$

$$\frac{x+y}{2} = 1 \quad x+y = 2$$

$$x=1, y=1$$

$$x \times y = 1 \times 1 = 1$$

$$10^{2x} = 0^{2x} \rightarrow 10^{2x} = 0^{2x} \Rightarrow 10^{2x} = 0^{2x}$$

$$10^{2x} = 10^0$$

$$2x = 0$$

dn

$$2x-1, 2x+1, 2x, \dots$$

(5)

$$d: 2x-1 \rightarrow 2x+1 = 2$$

$$d: 4x-2x+1 = 2x+1 = 2 \Rightarrow 2x=2 \rightarrow x=\frac{1}{2}$$

$$\xrightarrow{\text{النوع}} -2, 0, 2, \dots \quad a_n = 2n-2$$

$$a_f = 2 \times f - 2 = 4$$

$$a_n = 2, 4, 6, 8, 10, \dots \quad b_n = 2, 4, 6, 8, 10, \dots$$

(6)

$$2 \times 3 = 6 \rightarrow \text{قريب}$$

$$a_{2n} \rightarrow 2n+1 \rightarrow 2 \times 2n+1 = 4n+1$$

$$b_{2n} \rightarrow 2n-1 \rightarrow 2 \times 2n-1 = 4n-1$$

$$4n-1 < 4n+1$$

$$4n < 4n+1$$

$$n < n+1$$

نقطة تقارب

$$a_1 + a_2 + a_3 = 21$$

$$\cancel{a_1} + \cancel{a_2} + \cancel{a_3} =$$

(7)

$$a_1 + a_2 + a_3 = 10$$

$$a_3 - a_2 = 10 - 21 = -11$$

$$a_3 - a_2 + a_1 = ? a_1$$

$$\hookrightarrow \cancel{a_1} + \cancel{a_2} - \cancel{a_1} - \cancel{a_2} = 3d = -11$$

$$d = -\frac{11}{3}$$

$$\rightarrow a_1 + a_2 + a_3 = 21 \Rightarrow a_1 + a_1 + d + a_1 + 2d = 21$$

$$3a_1 + 3d = 21 \rightarrow 3(a_1 + d) = 21$$

$$a_1 + d = 7 \rightarrow a_1 + 2n = 7 \Rightarrow a_1 = -21$$

$$\cancel{a_1} + \cancel{a_2} - \cancel{a_1} - \cancel{a_2} + a_1 = a_1 + d \Rightarrow 2n - 21 = 7$$

$$\frac{a_3 - a_2 + a_1}{a_1} = \frac{7}{-21} = -\frac{1}{3}$$

(8)

$$x-y, x, x+y, x+y, x+y \rightarrow x-y + x + x + x = 10$$

$$\begin{matrix} \textcircled{1} & \textcircled{2} & \textcircled{3} & \textcircled{4} & \textcircled{5} \\ 1 & 5 & 8 & 11 & 14 \end{matrix}$$

$$3x = 10$$

$$x = \frac{10}{3}$$

• dot note

$$x + y + x + y = 20 \rightarrow 2x + 2y = 20$$

$$\hookrightarrow a_n: 2n-1 \rightarrow a_1 \Rightarrow 2 \times 1 - 1 = 1$$

$$2x = 10$$

$$x = 5$$

$$S_9 = 9 S_3 \rightarrow S_n = \frac{n}{2} (a_1 + a_n) \Rightarrow \quad (9)$$

$$\cancel{\frac{9}{2}} (a_1 + a_{10}) = \cancel{\frac{9}{2}} \times \cancel{\frac{18}{2}} (a_1 + a_4 + 3d)$$

$$9a_1 + 9d = 9a_1 + 9d$$

$$9d = 9a_1$$

$$d = a_1$$

$$\frac{a_1}{a_1} = \frac{a_1 + 9d}{a_1 + 3d} = \frac{a_1 + 9 \times a_1}{a_1 + \frac{9 \times a_1}{18 \times a_1}} = \frac{10a_1}{10a_1} = \boxed{10}$$

11, 13, 15

انبارت $\rightarrow$ $\begin{matrix} 11 & 13 & 15 \\ (1) & (3) & (5) \end{matrix} \rightarrow \begin{matrix} 15 = a_1 + 4d \\ 15 = 11 + 4d \end{matrix} \quad (10)$

$$15 = a_1 + 4d \rightarrow 11 + 4 \times 1 = 15 \quad (13)$$

$$15 = 11 + 4d$$

$$\boxed{d = 1}$$

دیکھو $\begin{matrix} 11 & 13 & 15 \\ (1) & (3) & (5) \end{matrix} \rightarrow (n) = 9$

$$\rightarrow a_9 = a_1 + 8d \rightarrow 15 + 8d = 15$$

$$8d = 0$$

$$d = 0$$

$$\frac{a_n - a_1}{n-1} = d$$

$$\frac{15 - 11}{5 - 1} = 1$$

$$\Rightarrow \frac{n-1}{n-1} = 1$$

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