

۲۵

$$t_n = \omega, 9, 13, 17, \dots$$

$\xrightarrow{+8} \quad \xrightarrow{+4}$

$$t_n = \omega + (n-1)r = 8n + 1$$

$$t_1 = 8(1) + 1 = 9$$

(۲)

۱

$$t_n = 9, 1, 13, 18, \dots$$

$$t_n = 9 + (n-1)r = 8n + 1$$

$$t_1 = 8(1) + 1 = 9$$

$$s_{10} = \frac{10}{2} \times (8 \times 9 + 9) = 450$$

$$t_{10} = 82$$

$$t_{10} = 8(10) + 1 = 81$$

$$t_{10} = 8(10) + 1 = 81$$

$$\frac{10}{2} \times (82 + 81) = 805$$

(۲)

(۲)

۲

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

$\xrightarrow{+1-\sqrt{3}} \quad \xrightarrow{+1-\sqrt{3}}$

$$t_{20} - t_{19} = a + rd - a - rd = rd$$

$$d = 1 - \sqrt{3} \Rightarrow rd = 2(1 - \sqrt{3}) = 2 - 2\sqrt{3}$$

(۲)

۳

$$d_n = \omega^{2x}, 3x\omega^{2x}, \omega^y, \dots$$

$$\omega^{2x}, 3x\omega^{2x}, \omega^y$$

$\xrightarrow{2x\omega^{2x}} \quad \xrightarrow{2x\omega^{2x}}$

$$d_n = d + rd = \omega^{2x} + 2x(\omega^{2x}) = \omega^y \Rightarrow \omega \times \omega^{2x} = \omega^y = \omega^{2x+1} \Rightarrow y = 2x+1$$

$$b_n = x, 2, y, \dots \rightarrow x, 2, 2x+1, \dots$$

$$b_2 = x + \frac{x+1}{2} = \frac{3x+1}{2} = 2 \Rightarrow 3x+1=4 \Rightarrow x=1$$

$$y = 2x+1 \Rightarrow y = 2(1)+1=3 \quad xy = 3 \times 1 = 3$$

$$b_2 - b_1 = d + rd - a = rd = 2x+1 - x = x+1 \Rightarrow d = \frac{x+1}{2}$$

(۲)

۴

$$t_n = 2x - 5, 2x - 1, 4x, \dots$$

$\xrightarrow{+3} \quad \xrightarrow{+2x+1}$

$$\Rightarrow 3 = 2x + 1 \Rightarrow 2x = 2 \Rightarrow x = 1$$

$$t_n = 2 \times \frac{1}{2} - 5, 2 \times \frac{1}{2} - 1, 4 \times \frac{1}{2}, \dots \rightarrow t_n = -3, 1, 2, \dots$$

$$t_n = -3 + (n-1)r = 2n - 5 \Rightarrow t_5 = 2(5) - 5 = 5$$

(۲)

۵

$$\left. \begin{aligned} a_n &= r \omega r \omega r \omega \dots \\ b_n &= r \omega r \omega r \omega \dots \end{aligned} \right\} c_n = \underbrace{\omega r}_{+r} \underbrace{r \omega}_{+r} \dots \rightarrow \text{شماره زوج}$$

$$c_n = \omega + (n-1)r = r_{n-1}$$

$$\left. \begin{aligned} a_n &= r + (n-1)r = r_n = r + 19 \times r = r_{20} \\ b_n &= r + (n-1)r = r_n = r + 19 \times r = r_{20} \end{aligned} \right\} r_1 < \omega < r_{20}$$

$$r_{n-1} < r_1 \quad (n \in \mathbb{N}) \Rightarrow r_n < r_1$$

$$\Rightarrow n \leq 20 \rightarrow \begin{matrix} 1 & 2 & 3 \\ r & \omega & r \\ 6 & 7 & 8 \end{matrix}$$

$$d_1 + d_r + d_\omega = r_1 \Rightarrow d_1 + d_r + d_\omega + r_1 d = r_1 d + r_1 d = r_1 (d + d) = r_1 \Rightarrow d_1 + d = r_1 \Rightarrow d_r = r_1$$

$$d_1 + d_r + d_\omega = 1 \cdot \omega \Rightarrow d_1 + d_r + d_\omega + r_1 d = r_1 d + r_1 d = r_1 (d + d) = 1 \cdot \omega \Rightarrow d_1 + d = \omega \Rightarrow d_r = \omega$$

$$d_1 + r_1 + r_1 \omega = r_1 \Rightarrow d_1 = r_1 - r_1 \omega = -r_1$$

$$\frac{d_r - d_r + d_1}{d_1} = \frac{r_1 - r_1 - r_1}{-r_1} = \frac{r_1}{-r_1} = -1$$

$$d_1 + d_r + d_\omega = 1 \cdot \omega \Rightarrow d_1 + d_r + d_\omega + r_1 d = r_1 d + r_1 d = r_1 (d + d) = 1 \cdot \omega \Rightarrow d_1 + d = \omega \Rightarrow d_r = \omega$$

$$d_r + d_\omega = r_1 \omega \Rightarrow d_r + d_\omega + r_1 d = r_1 d + r_1 d = r_1 (d + d) = r_1 \omega \Rightarrow d_r + d_\omega = r_1 \omega$$

$$\left. \begin{aligned} r_1 d_1 + r_1 d = r_1 \omega \\ d_1 + d = \omega \end{aligned} \right\} \omega d = 1 \omega \Rightarrow d = r_1$$

$$d_1 + r_1 = \omega \Rightarrow d_1 = r_1$$

$$t_n = r + (n-1)r \Rightarrow t_{20} = r + 19 \times r = r_{20}$$

$$S_9 = 9 S_{10}$$

↓

$$\frac{9}{r} \times (r a_1 + 19 d) = 9 \times \frac{r}{r} \times (r a_1 + r d)$$

$$9 a_1 + 19 d = r a_1 + r d \Rightarrow 19 d = r d \Rightarrow r a_1 = d$$

$$\frac{d_r}{a_v} = \frac{a_1 + 19 d}{a_1 + r d} = \frac{a_1 + r_1 a_1}{a_1 + r_1 a_1} = \frac{r_1 a_1}{r_1 a_1} = r_1$$

$$\left. \begin{aligned} d_1 &= 11 \\ a_v &= r_1 \omega \end{aligned} \right\} a_v - d_1 = d_1 + r_1 d - d_1 = r_1 d = r_1 \omega - 11 = r_1 r_1 \Rightarrow d = r_1$$

$$d_r = 11 + r_1 r_1 = r_1 r_1$$

$$\left. \begin{aligned} b_1 &= r_1 \omega \\ b_r &= r_1 r_1 \end{aligned} \right\} b_r - b_1 = b_1 + r_1 d - b_1 = r_1 d = r_1 r_1 - r_1 \omega = -1 \omega \Rightarrow d = -\omega$$

$$1 r_1 = r_1 \omega + (n-1) \cdot \omega = r_1 \omega - \omega n + \omega \Rightarrow \omega n = r_1 r_1 - 1 r_1 = r_1 \Rightarrow n = r_1$$

$$b_1 < \frac{b_r + b_r}{b_r + b_\omega} < b_9 \rightarrow b_r$$