

$$t_n = 5, 9, 13, 17, \dots$$

(۱)

الف)  $t_n = t_{n+1}$

ب)  $t_1 = 5, t_2 = 9, t_3 = 13, t_4 = 17$

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

$$t_n = t_{n+1} + 2$$

(۲)

الف)  $S_1 = \frac{1}{2} (2 \times 4 + 4 \times 4) = 12$

ب)  $t_1 + t_2 + t_3 + t_4 = \frac{4 \times 4 + 11 \times 4}{2} = 44$

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

$$a_{r+1} = a + r \cdot d$$

$$a_{r+1} = a + r \cdot d$$

$$a_{r+1} - a_r = r \cdot d = a_{r+1} - a_r$$

$$a_{r+1} - a_r = r(1 + \sqrt{3}) = r - r\sqrt{3}$$

(۳)

$$a_n = 5^x, 3 \times 5^x, 5^y$$

$$\frac{5^y + 5^x}{2} = 3 \times 5^x$$

$$5^y + 5^x = 6 \times 5^x$$

$$xy = ?$$

(۴)

$$b_n = x, y$$

$$\frac{y+x}{2} = 2 \quad y+x=4$$

$$2x+1=y$$

$$2x-y=-1$$

$$\left. \begin{array}{l} y+x=4 \\ 2x-y=-1 \end{array} \right\} + \quad 3x=3 \quad x=1$$

$$y=3$$

$$xy = 1 \times 3 = 3$$

$$a_n = 2n-1, 2n-1, 4n, \dots$$

$$-1, 0, 1, \dots$$

$$\frac{4n+2n-1}{2} = 2n-1$$

(۵)

$$a_n = 2n-1 \quad a_r = (r \times 4) - 4 = 4$$

$$1 \times 2 - 1 = 2 \times 2 - 1 \quad 2 \times 2 = 4 \quad n = \frac{1}{2}$$

$$a_n = 3, 5, 7, \dots$$

$$a_n = 2n+1$$

$$r \times 4$$

$$5, 11, \dots$$

$$r \times 2 + 1 = 11$$

(۶)

$$b_n = 2, 5, 8, \dots$$

$$b_n = 3n-1$$

$$a_n = 1$$

$$a_n = 1, 1, 1$$

$$a_n \neq r$$

$$n \leq 1$$

$$a_1 + a_r + a_r = 11$$

$$a_1 + a_r + a_r = 10.5$$

$$ra + rd = 11$$

$$ra + rd = 10.5$$

$$rd = 1.5$$

$$d = 1.5$$

$$a = -1$$

$$\frac{a_r - a_r + a}{a} = \frac{ra + d}{a} = \frac{(11) + 1.5}{-1} = \frac{12.5}{-1} = -12.5$$

(۷)

$$a_1 + a_r + a_r = 15$$

$$a_r + a_r = 15$$

$$ra + rd = 15 \quad 9a + 9d = 15 \quad \left. \begin{array}{l} ra + rd = 15 \\ 9a + 9d = 15 \end{array} \right\} \quad 10d = 15$$

$$ra + rd = 15 \quad 9a + 9d = 15$$

$$a = a + 9d = 1 + 9 \times 1.5 = 13.5$$

$$d = 1.5$$

(۸)

$$S_9 = 9 S_r$$

$$\frac{a_{r_0}}{a_v} = \frac{a+19d}{a+4d} = \frac{19/5d}{4/5d} = 19/4$$

(9)

$$\frac{9}{r}(ra+19d) = 9 \times \frac{r}{r}(ra+4d)$$

$$ra+19d = 4a+4d$$

$$rd = 4a$$

$$\frac{d}{r} = a$$

$$a_1 = 11$$

$$a_v = 11a + a + 9d$$

$$d = 4$$

$$a_7 = 11 + 6 \times 4 = 35$$

$$b_n = 11, \underbrace{11+d}_{15}, \underbrace{15+d}_{19}, \underbrace{19+d}_{23}, \dots, 11$$

$$11+3d = 23$$

$$3d = 12$$

$$d = 4$$

$$\frac{19-11}{4} = 2$$

$$n+1$$

$$n=4$$

$$\text{G.L.C.B. is } 11$$

(10)