

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

$\xrightarrow{4} \quad \xrightarrow{4} \quad \xrightarrow{4}$

$$t_n = 4n + 1 \quad (الف)$$

$$t_{10} = (4 \times 10) + 1 = 41 \quad (ب)$$

$$t_n = 9, 10, 14, 18, \dots$$

$\xrightarrow{1} \quad \xrightarrow{4} \quad \xrightarrow{4}$

$$S_{10} = \frac{10}{2} (2 \times 9 + 9 \times 4) = 240 \quad (الف)$$

$$t_n = 4n + 5 \quad t_{20} = 122$$

$$t_{21} = 126$$

$$t_{20} + t_{21} + t_{22} + t_{23} = 2t_{20} + 2t_{21} = 2(122) + 2(126) = 496 \quad (ب)$$

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

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

$$t_{20} - t_{21} = a_1 + 19d - a_1 - 18d = d = 1 - \sqrt{3} \Rightarrow 2 - 2\sqrt{3} \quad (ب)$$

$$a_n = \omega^x, 3 \times 2\omega^x, \omega^y$$

$$b_n = x, 2, y$$

$$3 \times 2\omega^x - \omega^x = \omega^y - 3 \times 2\omega^x \Rightarrow \omega \times 2\omega^x = \omega^y \Rightarrow x + 1 = y$$

$$2 - x = y - 2 \Rightarrow y = 4 - x$$

$$\Rightarrow 4 - x = x + 1 \quad 3x = 3 \Rightarrow x = \frac{3}{3} = 1$$

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

$$y = (2 \times 1) + 1 = 3$$

$$2x - 4, 2x - 1, 4x, \dots$$

$$2x - 1 - (2x - 4) = 4x - (2x - 1) \Rightarrow 3 = 2x + 1$$

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

$$d = 3$$

$$a_4 = a_1 + d = (4 \times \frac{1}{2}) + 3 = 5$$

$$a_n = r, \omega, v \Rightarrow a_n = rn+1 \Rightarrow a_{r0} = r1$$

$$b_n = r, \omega, \Lambda \Rightarrow b_n = rn-1 \Rightarrow b_{r0} = \omega 9$$

$$a_n \cap b_n = 9n-1$$

$$9n-1 < 41$$

$$9n < 42$$

$$n < 5$$

بله و جود دارد - v جمله مشترک

$$a_1 + a_r + a_v = r1$$

$$a_r = \frac{r1}{r} = v$$

$$a_1 + v + r\omega = r1$$

$$a_1 + a_r + a_\omega = 10\omega$$

$$a_r = \frac{10\omega}{r} = r\omega$$

$$a_1 = -r1$$

$$\frac{a_r - a_r + a_1}{a_1} = ?$$

$$\frac{r\omega - v - r1}{-r1} = \frac{v}{-r1} = -\frac{1}{r}$$

$$a_1 + a_r + a_v = 1\omega$$

$$a_r = \omega$$

$$a_1 + \omega + a_1 + rd = 1\omega \Rightarrow ra_1 + rd = 10$$

$$a_r + a_\omega = r\omega$$

$$a_1 + rd + a_1 + rd = r\omega \Rightarrow ra_1 + vd = r\omega$$

$$a_{10} = ?$$

$$\Rightarrow \omega d = 1\omega \Rightarrow d = r \quad a_1 = r$$

$$a_{10} = a_1 + 9d = \omega + 9r = r9$$

$$a_{10} = r9$$

$$S_9 = 9S_r$$

$$\frac{9}{r} (ra_1 + 9d) = 9 \times \left(\frac{r}{r} (ra_1 + rd) \right) \Rightarrow 9a_1 + 9d = rva_1 + rvd$$

$$\frac{a_{r0}}{a_v} = ?$$

$$11a_1 = 9d$$

$$a_1 = \frac{d}{r}$$

$$\frac{a_{r0}}{a_v} = \frac{a_1 + 9d}{a_1 + 4d} = \frac{\frac{d}{r} + 9d}{\frac{d}{r} + 4d} = \frac{\frac{r9d}{r}}{\frac{d+19d}{r}} = \frac{r9d}{19d} = \frac{r}{19}$$

$$a_1 = 11$$

$$a_v = r\omega$$

$$d = \frac{a_v - a_1}{v-1} = \frac{r\omega - 11}{9} = r$$

$$b_1 = r\Lambda$$

$$b_n = 1r$$

$$a_n = rn + v$$

$$a_r = b_r$$

$$b_r = 1r$$

$$d = \frac{b_r - b_1}{r-1} = \frac{1r - r\Lambda}{r} = \frac{r(1-\Lambda)}{r} = 1-\Lambda$$

$$a_r = 19 + v = r1$$

$$\frac{1r - r\Lambda}{- \omega} = \omega = \frac{1r - r\Lambda}{- \omega} + 1$$

$$d = -\omega$$

$$\frac{b_n - b_1}{d} = \frac{1r - r\Lambda}{- \omega} + 1$$

1.