

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

$$t_n = f_n + 1$$

$$f_{n+1} \quad (الف)$$

(۲)

$$t_{10} = f_{10} + 1 \Rightarrow (11) \quad (ب)$$

$$t_n = 9, 10, 11, 12, \dots$$

$$t_n = f_n + 2$$

$$t_{10} = f_{10} \Rightarrow S = \frac{(t_1 + t_n) \cdot n}{2} = 100$$

$$f_{10} \quad (الف)$$

$$\left. \begin{array}{l} t_9 = 118 \\ t_8 = 117 \\ t_7 = 116 \\ t_6 = 115 \end{array} \right\}$$

$$118 + 117 + 116 + 115 = (47) = t_n + t_{n-1} + t_{n-2} + t_{n-3} \quad (ب)$$

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

$$d = t_2 - t_1 \Rightarrow 2 - 1 - \sqrt{2} = (1 - \sqrt{2})$$

$$t_{10} - t_{100} = 2d \Rightarrow 2(1 - \sqrt{2}) \Rightarrow (2 - 2\sqrt{2})$$

(۲)

$$a_n = \alpha^x, r, \alpha^y \Rightarrow \log_{\alpha} \alpha^x = \alpha^x + \alpha^y \Rightarrow \alpha \alpha^x = \alpha^y$$

$$b_n = \alpha, r, y \Rightarrow \alpha + y = f \Rightarrow r\alpha + 1 = f \Rightarrow \alpha = 1$$

(۲)

$$\left. \begin{array}{l} \alpha = 1 \\ y = r \end{array} \right\} xy = (r) \quad (ب)$$

$$f_x = f, f_{x-1}, f_x \dots \Rightarrow f_{x-1} = 8x - 1 \Rightarrow f_x = 7$$

$$-2, 0, 2 \Rightarrow \frac{2}{2} = 1 \Rightarrow t_x$$

(۲)

$$\alpha = \frac{1}{2}$$

$t_1 \quad 0 \quad 0 \quad 0 \quad t_6$
 ۴ واسطه‌ها میان ۶

$a_n = 3, \omega, v \Rightarrow t_n = 2n + 1 \Rightarrow t_r = 41$

$b_n = 2, \omega, a \Rightarrow t_n = 2n - 1 \Rightarrow t_r = 39$

جمله مشترک = ۵ و ۱۱ ... $\Rightarrow 6n - 1$

(۲)

$6n - 1 \leq 41 \Rightarrow 6n \leq 42 \Rightarrow n \leq 7 \Rightarrow$ جمله مشترک

$a_1 + ar + ar^2 = 21 \Rightarrow 3t_1 + 3d = 21 \Rightarrow t_1 + d = 7 \Rightarrow ar$

$a_1 + ar + a\omega = 10\omega \Rightarrow 3t_1 + 3d = 10\omega \Rightarrow t_1 + 2d = 10\omega \Rightarrow ar$

$-21, 7, 10\omega, \dots \Rightarrow ar - ar + a_1 = 10\omega - 7 + 21 = 4\omega$

$$\frac{ar - ar + a_1}{a_1} = \frac{10\omega - 7 + 21}{-21} = -\frac{1}{3}$$

(۱۵)

$a_1 + ar + ar^2 = 10\omega \Rightarrow 3t_1 + 3d = 10\omega \Rightarrow (t_1 + d = 10\omega)$

$ar + a\omega = 20 \Rightarrow 3t_1 + 3d = 20 \Rightarrow t_1 + d = 10\omega$

$d = 10\omega \Rightarrow d = 0$
 $t_1 = 7$

$t_{10} = 7 + 20 = 27$

(۳)

$s_9 = 9s^c \Rightarrow 9t_1 + 36d = 20t_1 + 20d \Rightarrow 4t_1 = 9d \Rightarrow d = \frac{4}{9}t_1$

$ar = 3 \cdot t_1 + 19 \cdot d = 8 \cdot t_1$

$av = 2 \cdot t_1 + 11 \cdot d = 4 \cdot t_1$

$t_1 + 4d \rightarrow t_1 + 16t_1 = 17t_1$

$\frac{f_{10}}{f_9} = \frac{17}{13}$
 $\frac{17t_1}{13t_1} = \frac{17}{13}$

(۱)

$t_1 = 11 \Rightarrow t_6 = 11 + 5d \Rightarrow 5d = 25 \Rightarrow d = 5$

$t_6 = 11 + 25 = 36$

~~$t_1 = 11, t_2 = 16, t_3 = 21, t_4 = 26, t_5 = 31, t_6 = 36$~~

$t_6 = 36 + 25 = 61 \Rightarrow d = -5$

(۳)

~~Handwritten scribbles and crossed-out text.~~

$t_n = 0 \Rightarrow 11 + (n-1)5 = 0 \Rightarrow n = -2$
 $t_n = 0 \Rightarrow 11 + (n-1)(-5) = 0 \Rightarrow n = 3$