

۵, ۹, ۱۳, ۱۷, ...

(الف) $d = 4 \rightarrow t_n = 4n + 1$
(ب) $t_{10} = 4(10) + 1 = 41$

۴, ۱۰, ۱۶, ۱۸, ...

(الف) $\frac{10}{4} \left(\frac{4 + 42}{41} \right) = 24$

$t_n = 4n + 2$
 $[t_{10} = 4(10) + 2 = 42]$
 $[t_{29} = 4(29) + 2 = 118]$
 $[t_{32} = 4(32) + 2 = 130]$

(ب) $t_{29} + t_{32} + t_{31} + t_{30} = \frac{4}{4} (t_{29} + t_{32}) = 2(118 + 130) = 496$

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

$t_{r5} - t_{r3} = t_{rr} + 2d - t_{rr} = 2d = 2(1 - \sqrt{3}) = 2 - 2\sqrt{3}$

$d = a_2 - a_1 = 2 - 1 - \sqrt{3} = 1 - \sqrt{3}$

$\Delta^{2n}, 3, \Delta^{2n}, \Delta^y \rightarrow d: \Delta^{2n} \times 3 - \Delta^{2n} = \Delta^{2n}(3 - 1) = \Delta^{2n} \times 2$

$d: \Delta^y - 3 \times \Delta^{2n} = \Delta^{2n}(\Delta^{y-2n} - 3) = \Delta^{2n} \times 2 \rightarrow \Delta^{y-2n} - 3 = 2 \rightarrow \Delta^{y-2n} = 5$
 $y - 2n = 1 \rightarrow y = 2n + 1$

$x, 2, y \rightarrow d' = 2 - x = y - 2 \rightarrow f - x = y \rightarrow f - x = 2x + 1 \rightarrow 3 = 3x \Rightarrow x = 1, y = 3$
 $xy = 1 \times 3 = 3$

$2x - f, 2x - 1, 4x, \dots$
 $\downarrow \quad \downarrow \quad \downarrow$
 $-3, 0, 3$

$d = 2x - 1 - (2x - f) = 3$

$d = 4x - 2x + 1 = 2x + 1 = 3 \rightarrow x = \frac{1}{2}$

$t_n = 3n - 4 \rightarrow t_f = 3(f) - 4 = 4$

$a_n: 3, 5, 7, \dots \rightarrow a_n = 2n + 1$
 $d: 2$

$b_n: 2, 5, 8, \dots \rightarrow b_n = 3n - 1$
 $d: 3$

$\Rightarrow 5, 11, 17, \dots$ جلات مشترک
 $\downarrow d = 6$
جلات عمومی جلات مشترک: $4n - 1$

$a_{f0} = 2(20) + 1 = 41$

$b_{r0} = 3(20) - 1 = 59$

$\Rightarrow 4n - 1 < 41 \rightarrow n < 11 \rightarrow n \leq 10$
۷ جله مشترک در ۲ جله
اول دنباله های a_n, b_n

$a_1 + a_r + a_{10} = 41 \rightarrow a_r - d + a_r + a_r + d = 41 \rightarrow 3a_r = 41 \Rightarrow a_r = 14$

$a_1 + a_r + a_{10} = 105 \rightarrow a_r - 2d + a_r + a_r + 2d = 105 \rightarrow 3a_r = 105 \Rightarrow a_r = 35$

$a_1 + a_r + a_{10} = 41 \rightarrow a_1 + 14 + 35 = 41 \rightarrow a_1 = (-21)$

$\frac{a_{10} - a_r + a_1}{a_1} = \frac{35 - 14 - 21}{-21} = \frac{0}{-21} = \frac{-1}{3}$

$$a_1 + ar + ar = 10 \leadsto ar - d + ar + ar + d = 10 \leadsto 3ar = 10 \leadsto ar = \frac{10}{3}$$

$$ar + ad = 10 \leadsto ar + rd + ar + rd = 10 \leadsto 2ar + 2d = 10 \leadsto 10 + 2d = 10 \leadsto d = 0$$

$$an = 10 - 1 \leadsto a_1 = 10(1) - 1 = 9$$

$$S_4 = a_1 + ar + ar = ar - d + ar + ar + d = 3ar$$

$$S_4 = a_1 + ar + ar + \dots + an + aq = a_1 - d + a_2 - rd + \dots + a_4 + rd + a_4 + rd = 4a_1$$

$$S_4 = 4S_1 \leadsto 4a_1 = 4 \times 3ar \leadsto a_1 = 3ar \leadsto ar + rd = 3ar \leadsto rd = 2ar \leadsto d = \frac{2}{3}ar$$

$$\frac{ar}{ar} = \frac{ar + 1d}{ar + 2d} = \frac{ar + 1d}{ar + \frac{2}{3}d} = \frac{1 \times ar}{\frac{1}{3}ar} = 3$$

$$a_1 = 11, ar = 10 \leadsto ar - a_1 = a_1 + 4d_0 - a_1 = 10 \leadsto 4d_0 = 10 \Rightarrow d_0 = \frac{5}{2} \Rightarrow an = 11 + \frac{5}{2}(n-1)$$

$$t_1 = 10, tr = 10 \leadsto tr - t_1 = t_1 + rd_1 - t_1 = (-10) \leadsto rd_1 = (-10) \Rightarrow d_1 = (-10)$$

$$d = \frac{tm - tn}{t} \leadsto -10 = \frac{10 - 10}{m - 1} \leadsto -10 = \frac{-10}{m - 1} \leadsto m - 1 = 1 \leadsto m = 2$$



$$ar, ar, ar, ad \quad \text{و } f \leftarrow$$