

فرنام علی دوست

تاریخ 17

$\{1\}, \{2, 3, 4\}, \{5, 6, 7, 8, 9\}$
 (1) (2) (3)

n^2 : آخری عدد
 $(n-1)^2 + 1 = \frac{65+81}{2} = 73$

$\{1, 2, 3\}, \{4, \dots, 123\}, \{13, \dots, 39\}, \{40, \dots, 120\}, \{121, \dots, 263\} \rightarrow \frac{121+363}{2} = 242$

$a_0, a_3, a_6, a_9 \rightarrow$ فابولا $a_1, a_4, a_7 \rightarrow$ فابولا $a_2, a_5, a_8 \rightarrow$ فابولا

$S_{10} = 1 + 4 + (1+a) + 2 + (1+a) + 4 + 0 + (2+a) + 8 = 19 \rightarrow a = -2$

$a_n = \left\lfloor \frac{n}{n+2} \right\rfloor - 2$ $n = 3k+2 \rightarrow \left\lfloor \frac{3k+2}{k+2} \right\rfloor - 2 = \left\lfloor 2 + \frac{k-2}{k+2} \right\rfloor - 2 = \left\lfloor \frac{k-2}{k+2} \right\rfloor$

این عبارت برای $k=0$ برابر 1- و به ازای بقیه اعداد صحیح مثبتی جمله عبارت 2- می شود

$a = \frac{1}{70} \times 14 = -\frac{1}{5} \Rightarrow -\frac{1}{5} = 25 + 5b + c \Rightarrow 5b + c = 19$

$\frac{49}{5} + 7b + c = 7b + c = 27 \Rightarrow c = -1, b = 4$

$\frac{t_{15}}{t_1} = \frac{-\frac{1}{5} + 3 \cdot \frac{14}{5}}{-\frac{1}{5} + 2 \cdot \frac{14}{5} + 4 \cdot \frac{14}{5} - 1} = \frac{14}{5} = 5$

$a_4 = b_2 \rightarrow a + 3d = b_2$
 $a_8 = b_7 \rightarrow a + 7d = b_7 \Rightarrow b_7 - b_2 = 4d$

$b_n = cn + k$
 $b_7 - b_2 = 7c + k - (2c + k) = 5c$

$b_{10} = 0 \Rightarrow 10c + k = 0 \Rightarrow k = -10c$

$\frac{b_{15}}{d} = \frac{15c + k - 10c}{\frac{5}{4}c} = 4$

$6a^2 + 12ad + 6d^2 = 5a^2 + 10ad + 3a^2 + 30d = 12a^2 + ad - 6d^2 \Rightarrow a = -2d$

$9a = \frac{3}{2}d \Rightarrow a_4 = a + 3d \begin{cases} a_4 = d \\ a_4 = \frac{9}{2}d \end{cases}$

$\frac{a^2}{4} = \frac{c}{4} \times b \Rightarrow a^2 = cb \Rightarrow a^2 = (a \times d)(a + 2d) \Rightarrow a^2 = a^2 + 3ad + 2d^2$

$\Rightarrow 3ad = -2d^2 \Rightarrow r = -1 \Rightarrow 2r = -2$

$4a = 3b + c \Rightarrow 4a = 3ar + ar^2 + r^2 + 3r - 4 = 0$

$r(r+4)(r-1) = 0 \Rightarrow r = 1 \Rightarrow \frac{a_5}{a_6} =$

$\frac{ar^3}{a^3r^3} + \frac{ar}{a^2} = 2 \Rightarrow 2a^2 - ar - r^2 = 0 \Rightarrow r = -2a \Rightarrow \frac{a^2}{a_2} = \frac{a^2}{ar}$

$\Rightarrow \frac{a^2}{a^2} = 1 \quad , \quad \frac{a^2}{-2a^2} = -\frac{1}{2}$

$$a_3^2 = a_4 \Rightarrow a^2 r^4 = ar^3 + a = \frac{1}{r} \Rightarrow a_5 = 27 \Rightarrow 8r = 3$$

$$a = \frac{1}{3} \Rightarrow \frac{1}{2} - \frac{1}{3} = \frac{1}{6}$$

10

$$2a - c = 3b - 2a \Rightarrow 2a - ar^2 = (ar)^3 - 2a \stackrel{\div a}{\Rightarrow} 2 - r^2 = 3r - 2$$

$$r^2 + 3r - 4 = 0 \Rightarrow r = -4$$

-8

$$\frac{-3 \pm 5}{2} \Rightarrow r = 1 \rightarrow \text{فأبطلنا قيمته لأن قيمته صفر}$$

$$\Rightarrow \frac{T_9}{T_6} = r^3 = (-4)^3 = -64$$