

اولین $1^2 + 1 = 65$ آخرین $9^2 = 81$ $\frac{81 + 65}{2} = 73$	۱
$[1, 52] [4, \dots, 12] [13, \dots, 39] [40, \dots, 120] [121, \dots, 393]$ $\frac{393 + 121}{2} = \frac{414}{2} = 207$	۲
$a_1 + a_2 + \dots + a_{10} = 2^0 + 2^1 + 1 + a + 2 + 2 + 1 + a + 2 + 0 + 2 + a + 1 = 19 \Rightarrow$ $20 + 2a = 19 \Rightarrow a = -1$ $a_2 + a_0 + \dots + a_{20} = \underbrace{2(1+a)}_{a_2+a_0} + \underbrace{1(2+a)}_{a_1+a_{11}+\dots+a_{19}} = 2(-1) + 1(0) = -2$	۳
$a_1 - a_2 = 4d$ $b_1 - b_2 = 5d' = 4d \Rightarrow$ $b_{10} = b_1 + 5d' = 0 + 5d' = 5d' = 4d$ چهار برابر قدر مطلق دنباله حسابی است.	۴
$\frac{1}{5} \times (-14) = -\frac{14}{5}$ $-\frac{1}{5} \times 0^2 + 50 + c = 14 \Rightarrow 50 + c = 14$ $a_1 = -\frac{1}{5} \times 1^2 + 5 \times 1 + (-1) = \frac{9}{5}$ $-\frac{1}{5} \times 7^2 + 5 \times 7 + c = 14 \Rightarrow 7b + c = 14 - \frac{49}{5} = \frac{7}{5}$ $a_{10} = -\frac{1}{5} \times 10^2 + 5 \times 10 + (-1) = -1$ $-\frac{1}{5} \times 0^2 + 5 \times 0 + c = 14$ $2b = \frac{9}{5} + \frac{7}{5}$ $2b = 1 \Rightarrow b = \frac{1}{2}$ $c = -1$ $\frac{a_{10}}{d_1} = \frac{-14}{\frac{14}{5}} = -5$	۵

$$q(a+d)^r = o(a+u)a + r(a+d)a$$

$$qa^r + rad + qd^r = oa^r + oad + ra^r + rda$$

$$ra^r + ad - qd^r = 0 \quad (a+rd)(ra-rd) = 0$$

$$\rightarrow a = -rd \Rightarrow \frac{a+rd}{d} = \frac{-rd+rd}{d} = 1$$

$$\rightarrow ra = rd \Rightarrow a = \frac{r}{r}d \Rightarrow \frac{a+rd}{d} = \frac{\frac{r}{r}d+rd}{d} = \frac{r}{1} = r/o$$

$$b = \frac{a+c}{r}, \quad \frac{c}{f} = \frac{\frac{a}{r}}{\frac{1}{f}} \Rightarrow c = \frac{ra}{f}, \quad b = \frac{a}{r}q$$

$$\frac{a}{r}q = \frac{a + \frac{ra}{f}}{r} \Rightarrow aq = a + \frac{ra}{f} \quad q^r = q + r \Rightarrow q^r - q - r = 0$$

$$(q-r)(q+1) = 0 \rightarrow \begin{cases} q = -1 \checkmark & rq = -r \\ q = r \checkmark & rq = r \end{cases}$$

$$\frac{c+rd}{r} = ra \quad rb = r \frac{a}{f}q \quad ra = r \frac{a}{f}q^r$$

$$\frac{c+rcq}{r} = r \frac{a}{f}q^r \Rightarrow \frac{1+rq}{r} = r q^r \Rightarrow r q^r - rq - 1 = 0$$

$$\Delta = 1 + 19 = 20 \quad q = \frac{r \pm \sqrt{20}}{1} \Rightarrow \begin{cases} q = 1 \times 5\sqrt{5} \\ q = -\frac{1}{f} \end{cases} \quad \frac{a_1}{a_2} = q^r = -\frac{1}{4f}$$

$$\frac{aq^0}{(aq)^r} + \frac{aq}{a^r} = r \Rightarrow \frac{q^r}{a^r} + \frac{q}{a} = r \Rightarrow \left(\frac{q}{a}\right)^r + \frac{q}{a} - r = 0$$

$$\left(\frac{q}{a} + r\right)\left(\frac{q}{a} - 1\right) = 0 \Rightarrow \begin{cases} \frac{q}{a} = -r \Rightarrow \frac{\frac{1}{q}}{\frac{a}{q}} = -\frac{1}{r} \\ \frac{q}{a} = 1 \Rightarrow \frac{\frac{1}{q}}{\frac{a}{q}} = 1 \end{cases}$$

$$\frac{a^r}{a_r} = \frac{a^r}{aq} = \frac{a}{q} = \frac{1}{\frac{q}{a}}$$

$$a_r^r = a_r = a_r q \Rightarrow q = a_r \quad a_o = a_r \times q^r = q^r = rv$$

$$q = r$$

$$a_1 = \frac{a_o}{q^r} = \frac{rv}{11} = \frac{1}{r} \quad \frac{1}{r} - \frac{1}{r} = \frac{r}{9} - \frac{r}{9} = \frac{1}{9}$$