

-1

$$\begin{array}{ccccccc}
 1 & 9 & 5 & 9 & 12 & 9 & 22 \\
 & \nearrow & & \nearrow & & \nearrow & \\
 & +4 & & +6 & & +10 & \\
 & & \nearrow & & \nearrow & & \\
 & & +3 & & +3 & & 
 \end{array}$$

$$a_n = an^2 + bn + c$$

$$a_n = \frac{3}{2}n^2 - \frac{1}{2}n$$

$$a_{10} = \frac{3}{2} \times 100 - 50 = 100$$

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$$\begin{array}{ccccccc}
 0 & 9 & 1 & 9 & 3 & 9 & 6 \\
 & \nearrow & & \nearrow & & \nearrow & \\
 & +1 & & +2 & & +3 & \\
 & & \nearrow & & \nearrow & & \\
 & & +1 & & +1 & & 
 \end{array}$$

~~$$a_n = \frac{1}{2}n^2 - \frac{1}{2}n$$~~

$$\begin{aligned}
 a_1 &= a + b + c = \frac{1}{2} + b + c = 0 \\
 a_2 &= 4a + 2b + c = 2 + 2b + c = 1 \\
 &\Rightarrow b = \frac{1}{2} - c
 \end{aligned}$$

$$a_n = \frac{1}{2}n^2 - \frac{1}{2}n = \frac{n(n-1)}{2}$$

$$a_n = \frac{n(n-1)}{2} = 55 \Rightarrow n=11 \text{ (در جدولی باز دهم)}$$

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مهره های رنگی  $\rightarrow 5, 9, 13, 17, \dots$

$$\begin{aligned}
 a_n &= 4n + 1 \\
 \left. \begin{aligned} & \Rightarrow a_{11} = 45 \\ & \text{if } n=11 \end{aligned} \right\} &\Rightarrow a_{11} = 40
 \end{aligned}$$

مهره های سفید  $\rightarrow 0, 4, 8, 12, \dots$

$$a_n = 4n - 4$$

مهره های رنگی = 45

مجموع = 45 + 40 = 85

مهره های سفید = 40

-4

$$a_n = \frac{(-1)^n}{n}$$

$$\frac{1}{2} - (-1) = \frac{3}{2}$$

بزرگترین =  $a_2 = \frac{(-1)^2}{2} = \frac{1}{2}$

کوچکترین =  $a_1 = \frac{(-1)^1}{1} = -1$

$$b_n = (-r)^n - vn \Rightarrow b_r = (-r)^r - (v \times r) = -rA$$

$$a_n = -an + r \quad \& \quad a_k = -ak + r = -rA \Rightarrow ak = V_0$$

$$\Rightarrow k = 1r$$

$$\frac{t_m - t_n}{m - n} = d \Rightarrow \frac{t_{10} - t_v}{10 - v} = \frac{1r}{r} = r = d$$

$$t_3 = t_1 + \omega d \Rightarrow t_3 - t_1 = t_1 + \omega d - t_1 = \omega d = r_0$$

$$a_r = V$$

$$a_r = 1\omega$$

$$\frac{a_r - a_v}{r - v} = \frac{A}{r} = r = d$$

$$a_r = a_1 + r \Rightarrow a_1 = r$$

$$a_r = a_1 + rd \Rightarrow ar = 11$$

$$b_n = an + b$$

$$b_1 = r$$

$$d = 1$$

$$b_r = 11$$

$$b_n = An - \omega$$

$$t_n = \frac{r_n - r}{r_n + r}$$

$$\frac{r_n - r}{r_n + r} > \frac{r}{r} \Rightarrow n \leq 4$$

$$t_3 = \frac{r_3}{1\omega} \leq \frac{r}{r}$$

$$t_v = \frac{r_3}{1v} > \frac{r}{r}$$

$$\begin{array}{ccccccc} 5 & 9 & 9 & 9 & 9 & 5 \\ \rightarrow & \rightarrow & \rightarrow & \rightarrow & \rightarrow & \\ +r & +0 & -r & & & \\ \rightarrow & & \rightarrow & & & \\ -r & & -r & & & \end{array}$$

$$t_n = An^r + Bn$$

$$A = -\frac{r}{r} \quad \begin{cases} t_1 = -\frac{r}{r} + B = 5 \\ t_r = -5 + rB = 9 \end{cases}$$

$$\Rightarrow B = V/\omega \Rightarrow t_n = -\frac{r}{r} n^r + V/\omega n$$

$$t_n = -5 \quad \& \quad -f \quad \& \quad 0$$

$$t_n = an^r + bn + c$$

$$a = 1 \quad c = -5$$

$$b = -1 \Rightarrow t_n = n^r - n - 5$$

$$t_1 = 1 + b + c = -5 \quad \& \quad 10$$

$$t_r = r + rb + c = -r$$

$$b = -1$$

$$\& \quad c = -5$$

$$\frac{t_r - t_v}{r - v} = \frac{10}{r} = \omega = d$$

$$t_r = t_1 + \omega = r1 \Rightarrow t_1 = r3$$

$$t_n = \omega n + r1$$

$$n^r - n - 5 = \omega n + r1$$

$$\Rightarrow n^r - 5n = rV \Rightarrow n = 9 \text{ priors}$$