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$$\left. \begin{array}{l} t_1 = 4 \\ t_k = 41 \end{array} \right\} \rightarrow t_k - t_1 = 36 = 71 - 4 = 67 \rightarrow d = 7$$

$$t_n = t_1 + d(n-1) \rightarrow 4 + 7(n-1) = 7n + 33$$

$$\rightarrow 4n = 7n + 33 \rightarrow 3n = -33 \rightarrow n = -11$$

$$99 < 7n - 4 < 100$$

$$103 < 7n < 104$$

$$14, \dots < n < 143, \dots \rightarrow n = [14, 143] \rightarrow \text{تعداد} = 143 - 14 + 1 = 130$$

$$n=0 \rightarrow a_1 + a_2 + a_3 = 12 \rightarrow 3a_1 + 3d = 12 \rightarrow a_1 + d = a_2 = 4$$

$$n=1 \rightarrow a_2 + a_3 + a_4 = 9 \rightarrow 3a_2 + 3d = 9 \rightarrow 3d = -3 \rightarrow d = -1$$

$$\Rightarrow a_2 = a_1 + d = 4 \rightarrow a_1 = 5$$

$$a_{10} + a_{11} = 10a_1 + 9d = 50 - 9 = 41$$

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

$$r^x(r^x + 1) = r^{2x} + 4 \rightarrow r^x(r^x - 3) = 4$$

$$x=1 \rightarrow r(r-3) \neq 4$$

حال از حدس در نمایش استفاده کردیم

$$\xrightarrow{x=2} r(r-3) = 4 \checkmark \rightarrow S = r^4 - 3 + r^2 + r^2 - 1 = 24$$

$$t_{12} - t_1 \Rightarrow 3d = 0$$

$$t_1 + t_{12} = 2t_1 + 11d = 0 \rightarrow 2t_1 = -11d \rightarrow t_1 = -11/2 d$$

$$t_{11} = t_1 + 10d = -11/2 d + 10d = 9/2 d = 45$$

$$t_1 + t_r + t_p + t_k + t_w = \frac{1}{\mu} (t_1 + t_u + t_n + t_q + t_{10})$$

$$\omega t_1 + 10d = \frac{1}{\mu} (\omega t_1 + 10d) \rightarrow \frac{10}{\mu} t_1 - \frac{\omega}{\mu} t_1 = \frac{10\omega}{\mu} d - \frac{10}{\mu} d$$

$$\frac{10t_1}{\mu} = \frac{\omega d}{\mu} \rightarrow 10t_1 = \omega d$$

$$10t_1 = \omega d$$

$$\frac{t_r}{t_1} = \frac{t_1 + d}{t_1} \xrightarrow{10t_1 = \omega d} \frac{10t_1}{t_1} = 10$$

$$n = k \rightarrow t_k = t_1 + k d = t_1 + 10d$$

$$10d = 10 \rightarrow d = 1$$

$$t_q^p - t_w^p = (t_1 + k_0)^p - (t_1 + k_0)^p = t_1^p + 1700 + 110t_1 - t_1^p - k_0 - k_0 t_1 = 1700 + k_0 t_1$$

$$t_u = t_1 + 7d = t_1 + k_0 \rightarrow \frac{t_q^p - t_w^p}{t_u} = \frac{1700 + k_0 t_1}{t_1 + k_0} = \frac{k_0 (k_0 + t_1)}{t_1 + k_0} = k_0$$

$$d = \frac{b-a}{m+1} \rightarrow \frac{1 + \sqrt{k} - 1 + 11\sqrt{k}}{11+1} = \frac{11\sqrt{k}}{11} = \sqrt{k}$$

$$d = \frac{b-a}{m+1} \rightarrow \frac{11r-1}{11n-11+1} = \frac{11}{11n-10} = \frac{10}{11n-1}$$

$$r|n \text{ divides } \rightarrow a_{n+1} = a_1 + n d = 11 \rightarrow n d = 9$$

$$\frac{10n}{11n-1} = 9 \rightarrow 10n - 9 = 99n - 9 \rightarrow 11n = 9$$

$$n = 9$$

$$a_n + a_{n+k} = a_k + a_{10} \rightarrow 11n + k = 10 \rightarrow n = 1$$

$$t_n = 11t_k \rightarrow t_1 + 10d = 11t_1 + 9d$$

$$-10d = 11t_1 \rightarrow t_1 = -d$$

$$t_n = t_1 - t_1(n-1) = 11t_1 - t_1 n = 0 \rightarrow 11t_1 = t_1 n \rightarrow n = 11$$

حلہ دوں اس میں سوال سے اس کے