

$$\frac{\sqrt{n+1}}{\sqrt{n-1}+r} - \frac{\sqrt{n+1}}{r-\sqrt{n-1}} = \frac{n-1}{\sqrt{n-1}}$$

$$n-1 \geq 0 \rightarrow n \geq 1 \quad \text{چون خارج دلی } n \geq 1$$

$$(\sqrt{n-1}+r)(r-\sqrt{n-1}) = r^2 - (n-1) = r^2 - n + 1 = 10 - n$$

$$\frac{\sqrt{n+1}(-r\sqrt{n-1})}{10-n} = \frac{-r\sqrt{n-1}}{10-n}$$

$$f(a) \rightarrow f(a)=b \rightarrow f(b)=a \rightarrow a=b \rightarrow f(a)=a$$

$$f(n)=n \rightarrow r^2 - r^2 + r^2 = n \quad \frac{-r\sqrt{n+1}(n-1)}{10-n} = n-1$$

$$(-r\sqrt{n+1}(n-1)) \rightarrow 10-n \geq 0 \rightarrow n \leq 10$$

$$n^2 - r^2 \leq n+1 \rightarrow (n-r)(n+r) \leq n+1 \rightarrow n \leq 1+r$$

$$t = \sqrt{r-n}$$

$$n < r, \sqrt{r-n} \geq 0 \quad t > 0$$

$$r-n = t^2 \quad \frac{1}{t+r} - \frac{1}{r-t} = \frac{t}{\Delta}$$

$$(t+r)(r-t) = \Delta - t^2 \quad \frac{(r-t) - (t+r)}{(t+r)(r-t)} = \frac{t}{\Delta}$$

$$\frac{-rt}{\Delta - t^2} - \frac{t}{\Delta} = 0 \rightarrow t \left(\frac{-r}{\Delta - t^2} - \frac{1}{\Delta} \right) = 0$$

$$\frac{-r}{\Delta - t^2} = \frac{1}{\Delta} \rightarrow -r \times \Delta = 1 \times (\Delta - t^2)$$

$$-1 = \Delta - t^2 \rightarrow t^2 = 1 - \Delta \rightarrow \sqrt{1-\Delta} = \sqrt{r-n}$$

$$1 - \Delta = r-n \rightarrow n = -1 - r$$

$$\frac{n_0}{y} = \frac{e}{\Delta} \rightarrow n = \frac{e}{\Delta} y \rightarrow w = \frac{e}{\Delta}$$

سوال ۱

$$T = \frac{n_1}{y} = \frac{1 + \sqrt{\Delta}}{r}$$

$$\frac{1 + \sqrt{\Delta}}{r} \times w \times w = \frac{1 + \sqrt{\Delta}}{r} \times \frac{1 + \sqrt{\Delta}}{r} \times \frac{1 + \sqrt{\Delta}}{r}$$

$$A_0 = n_0 y = \frac{\Delta^r}{\Delta} y^r$$

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$$\frac{A_1}{A_0} = \frac{T y^r}{\frac{\Delta^r}{\Delta} y^r} = \frac{\Delta}{e} T$$

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حاصل می شود

$$d = \sqrt{n^2 + y^2}$$

$$\frac{\sqrt{n^2 + y^2}}{n} = T$$

سوال ۲

$$n^2 + y^2 = T^2 n^2$$

$$y^2 = (T^2 - 1) n^2$$

$$\left(\frac{n}{y}\right)^2 = \frac{n^2}{y^2} = \frac{1}{T^2 - 1}$$

$$T^2 - 1 = T$$

$$\frac{1}{y} = \frac{1}{T}$$

$$\left(\frac{1}{y}\right)^2 = \frac{1}{T}$$

$$n^2 + y^2 = \frac{1 + \sqrt{\Delta}}{r} y^r \rightarrow n^2 = \frac{1 + \sqrt{\Delta}}{r} y^r - y^2$$

$$\frac{y^r}{n^2} = \frac{r}{1 + \sqrt{\Delta}}$$

عید نوروز (تعطیل)

$$3a + \sqrt{2a^2 + 8a} = r$$

$$\frac{a+1}{a} = ?$$

سوال ۳

$$\sqrt{2a^2 + 8a} = (-3a + r) \rightarrow 2a^2 + 8a = 9a^2 + r^2 - 6ar$$

$$7a^2 - 14a + r^2 = 0 \quad \Delta = (-14)^2 - 4(7)(r^2) = 14^2 - 28r^2 \rightarrow \sqrt{\Delta} = 14$$

$$a = \frac{14 \pm 14}{14} \begin{cases} r & \text{موجب} \\ \frac{r}{7} & \text{منفی} \end{cases}$$

$$\frac{r+1}{\frac{r}{7}} = \frac{7}{\frac{r}{7}} = \frac{49}{r}$$

$$\frac{1}{n^2} + \frac{1}{(1-n)^2} = \frac{140}{9}$$

$$(1-n)^2 + n^2 = 1 - 2n + n^2 + n^2 = 1 - 2n + 2n^2$$

$$\frac{1 - 2n + 2n^2}{n^2(1-n^2)} = \frac{140}{9}$$

$$9(1 - 2n + 2n^2) = 140(n^2 - n^4 + n^6)$$

$$140n^6 - 320n^4 + 140n^2 - 18n^2 + 18n - 9 = 0$$

$$140n^6 - 320n^4 + 122n^2 + 18n - 9 = 0$$

$$\frac{-(-122)}{140} = \frac{320}{140} = 2$$

$$\sqrt{n + \sqrt{-n^3 + 8n^2 + 24n - 100}} + \sqrt{n^2 + \sqrt{-n^2 + 4n - 1}} = n + 2$$

$$(1) -n^3 + 8n^2 + 24n - 100 > 0$$

$$(2) -n^2 + 4n - 1 \geq 0 \rightarrow n^2 - 4n + 1 \leq 0 \rightarrow (n-2)(n-8) \leq 0$$

$$n \in [2, 8]$$

$$(3) n \geq 0$$

$$n = 2 \rightarrow \sqrt{2 + \sqrt{-8 + 32 + 48 - 100}} + \sqrt{4 + \sqrt{-4 + 8 - 1}} = \sqrt{2 + \sqrt{-24}} + \sqrt{4 + \sqrt{-4}} = \sqrt{2 + 2i\sqrt{6}} + \sqrt{4 - 2} = \sqrt{2 + 2i\sqrt{6}} + \sqrt{2}$$

$$n = 8 \rightarrow \sqrt{8 + \sqrt{-512 + 512 + 192 - 100}} + \sqrt{64 + \sqrt{-64 + 32 - 1}} = \sqrt{8 + \sqrt{-100}} + \sqrt{64 + \sqrt{-33}} = \sqrt{8 - 10i} + \sqrt{64 - \sqrt{33}}$$

تساوی جواب ندارد

$$\begin{aligned}
 n < -r &\rightarrow |n+r| = -(n+r) = -n-r \\
 |n-1| &= -(n-1) = -n+1 \\
 y &= (-n-r) + (-n+1) = -2n-1
 \end{aligned}$$

$$\begin{aligned}
 -r \leq n < 1 &\rightarrow |n+r| = n+r \\
 |n-1| &= -(n-1) = -n+1 \\
 y &= n+r - n + 1 = r+1
 \end{aligned}$$

$$\begin{aligned}
 n > 1 &\quad |n+r| = n+r \\
 |n-1| &= n-1 \rightarrow y = n+r + n-1 = 2n+r-1
 \end{aligned}$$

$$-r \leq n-1 \leq \frac{1}{r} \rightarrow -4r - r \leq 1/r - n \rightarrow -5r \leq 1/r - n \rightarrow n \leq \frac{1}{r} + 5r$$

$$y = -r(-\varepsilon) = 1 = 1-1 = 0 \rightarrow (-\varepsilon, 1)$$

$$r \leq n+1 \leq \frac{1}{r} \rightarrow rn \leq 1 \rightarrow n \leq \frac{1}{r} \rightarrow (r, \frac{1}{r})$$

$$A = (-\varepsilon, 1) \quad B = (r, \frac{1}{r}) \quad AB = \sqrt{(r - (-\varepsilon))^2 + (\frac{1}{r} - 1)^2}$$

$$n^2 - \varepsilon n + \varepsilon = (n-r)^2 \rightarrow y = \sqrt{(n-r)^2} = |n-r|$$

$$\textcircled{1} \quad n-r \geq 0 \rightarrow n \geq r \quad n-r \leq \frac{1}{r} \rightarrow n \leq r + \frac{1}{r}$$

$$n - \frac{1}{r} \leq n \leq r + \frac{1}{r} \rightarrow \frac{1}{r} \leq n \leq r + \frac{1}{r}$$

$$\textcircled{2} \quad n-r < 0 \rightarrow n < r \rightarrow -(n-r) = r-n \leq \frac{1}{r} \rightarrow n \geq r - \frac{1}{r}$$

$$r - n \leq \frac{1}{r} \rightarrow n \geq r - \frac{1}{r} \rightarrow r - \frac{1}{r} \leq n \leq r + \frac{1}{r}$$

$$r \leq m \leq n \rightarrow \frac{1}{r} m + r, |m - r| \geq m - r$$

$$\frac{r \times r}{r} = r \quad \text{عوضه} \quad \frac{r \times r}{r} = r$$

$$\frac{r \times r}{r} = r \quad \leftarrow m=1 \quad \in m=r-1$$

$$S = r + r = 2r$$

$$F = F \quad B = F - r$$

$$B = B$$

$$\frac{1}{B} + \frac{1}{F} = \frac{1}{r_0} \rightarrow \frac{1}{F-r} + \frac{1}{F} = \frac{1}{r_0}$$

$$\frac{r(F-r)}{F(F-r)} = \frac{1}{r_0} \rightarrow r_0(F-r) = F(F-r) \Rightarrow$$

$$E_0 F - I_0 = F^2 - r F$$

$$F^2 - E_0 F + I_0 = 0$$

$$B = E_0 - r = \frac{r_0}{r} \quad (F - E_0)(F - r) \left\{ \begin{array}{l} E_0 \text{ و } r \\ + E_0 \text{ و } r \end{array} \right.$$