

ساراسامانی یازدهم وخته A تکلیف شماره ۱۸

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۱- می دانیم در مسئله طولی $\frac{L}{c} = \frac{\sqrt{d} + 1}{\mu}$

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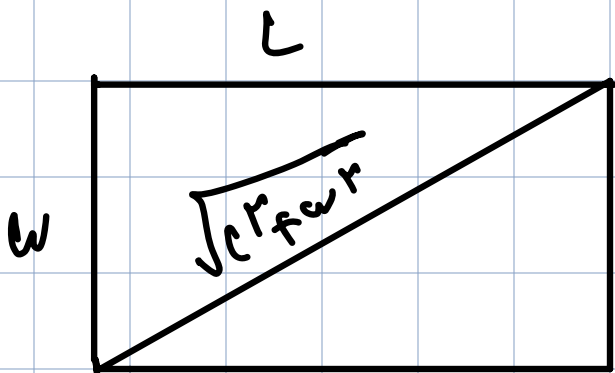
$$\frac{d+n}{\mu} = \frac{\sqrt{d} + 1}{\mu} \Rightarrow \mu n + 10 = \mu \sqrt{d} + \mu \Rightarrow$$

$$\mu n = \mu \sqrt{d} - 9 \Rightarrow n = \sqrt{d} - 3 \Rightarrow L' = 2\sqrt{d} + 2$$

$$S = \mu \times d = \mu_0 \quad S' = (2\sqrt{d} + 2)(\mu) = 2\sqrt{d} + 2$$

$$\frac{2\sqrt{d} + 2}{\mu_0} = \frac{2(\sqrt{d} + 1)}{\mu_0} = \underline{0, \mu(\sqrt{d} + 1)}$$

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$$\frac{\sqrt{L^2 + w^2}}{L} = \frac{\sqrt{d} + 1}{\mu} \quad \text{می توان}$$

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$$\frac{L^2 + w^2}{L^2} = \frac{9 + 2\sqrt{d}}{\mu} \Rightarrow 1 + \frac{w^2}{L^2} = \frac{9 + \sqrt{d}}{\mu} \Rightarrow$$

$$\frac{w + \sqrt{a} - r}{r} = \frac{w^r}{L^r} \Rightarrow \frac{1 + \sqrt{a}}{r} = \frac{w^r}{L^r} \Rightarrow \frac{L^r}{w^r} = \frac{r}{\sqrt{a} + 1}$$

$$\underbrace{\frac{\sqrt{a} - 1}{r}}_{\substack{\text{نوعان} \\ \text{نوعان}}} \quad \underbrace{w_a - r = -\sqrt{r a^r + r a}}_{\substack{\text{نوعان} \\ \text{نوعان}}} \rightarrow 9a^r - 11a + r = r a^r + r a \quad -r$$

$$9a^r - 11a + r = 0$$

$$\Delta = r a^r - F(F)(V) = 1 r r$$

$$\frac{1r \pm \sqrt{1 r r}}{1 r} \rightarrow \begin{matrix} \text{نوعان} \\ \text{نوعان} \end{matrix}$$

$$\frac{a+1}{a} = \frac{9}{\frac{r}{v}} = \frac{9}{\frac{r}{v}}$$

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

$$n-1 > 0 \Rightarrow n > 1, r - \sqrt{n-1} \neq 0 \Rightarrow n \neq 1$$

$$t = \sqrt{n-1}, (t \geq 0) \Rightarrow n = t^r + 1 \Rightarrow \sqrt{n+1} = \sqrt{t^r + r}$$

$$\sqrt{t^r + r} \left(\frac{1}{t+r} - \frac{1}{r-t} \right) = \frac{t^r}{t} = t, \quad \frac{1}{t+r} - \frac{1}{r-t} = \frac{(r-t) - (t+r)}{(t+r)(r-t)}$$

$$\frac{-rt}{-rt-r} = \frac{rt}{tr-r} \Rightarrow \sqrt{t^r + r} \cdot \frac{rt}{tr-r} = t \xrightarrow{\div t}$$

$$\frac{2\sqrt{t^2+2}}{t^2-9} = 1 \Rightarrow 2\sqrt{t^2+2} = t^2-9 \xrightarrow{\text{توان } 2} \sqrt{t^2+2} = \frac{t^2-9}{2}$$

$\Rightarrow t \neq 3, t^2-9 \geq 0 \Rightarrow t > 3$ (همواره مثبت)

$$4t^4 + 8 = t^4 - 18t^2 + 81 \rightarrow t^4 - 22t^2 + 73$$

$$t^2 = u \Rightarrow u^2 - 22u + 73 = 0 \rightarrow \frac{22 \pm \sqrt{192}}{2} \Rightarrow$$

$$u = 11 + 4\sqrt{3} \Rightarrow t^2 = 11 + 4\sqrt{3} \Rightarrow t^2 = n - 1 \Rightarrow$$

← غرض

$$w = 12 + 4\sqrt{3} \rightarrow \text{فقط این مثبت است}$$

$$\frac{1}{\sqrt{t}+2} - \frac{1}{2-\sqrt{t}} = \frac{t}{2\sqrt{t}} \Rightarrow$$

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$$\frac{2-\sqrt{t}-\sqrt{t}-2}{2-t} = \frac{t}{2\sqrt{t}} \Rightarrow \frac{-2\sqrt{t}}{2-t} = \frac{t}{2\sqrt{t}} \Rightarrow$$

$$4t - t^2 = -10t \Rightarrow t^2 - 14t = 0 \rightarrow t = 0 \rightarrow t = 14$$

همواره ناقد، همیشه مثبت است

$$2-n=0 \rightarrow n=2 \text{ غرض}$$

$$2-n=14 \rightarrow n=-12 \text{ غرض}$$

$$\frac{1}{n^r} + \frac{1}{(1-n)^r} = 140 \quad n = \frac{1}{r} + t \quad (5) - 4$$

$$\frac{1}{(\frac{1}{r} + t)^r} + \frac{1}{(\frac{1}{r} - t)^r} = \frac{140}{9} \rightarrow \frac{\frac{1}{r} + t^r - t + \frac{1}{r} + t^r + t}{(\frac{1}{r} - t^r)^r}$$

$$\frac{r(\frac{1}{r} + t^r)}{(\frac{1}{r} - t^r)^r} = \frac{140}{9} \rightarrow \frac{9}{r} + 9t^r \Rightarrow 140t^r - 194t^r + 11 = 0$$

$$t^r = u$$

$$140u^r - 194u + 11 = 0$$

$$\Delta = 156 \rightarrow \frac{194 \pm 156}{4r_0} \rightarrow u = \frac{1}{14}$$

$$u = \frac{11}{r_0}$$

$$t = \pm \frac{1}{r}, \pm \frac{\sqrt{25}}{10}$$

$$n = \frac{1}{r} + t \rightarrow n = \frac{1}{r}, \frac{r}{r}, \frac{1}{r} \pm \frac{\sqrt{25}}{10} \quad \text{کریج} = 2$$

$$-n^r + 4n - 1 \geq 0 \rightarrow (n-2)(n-4) \leq 0 \Rightarrow 2 \leq n \leq 4 \quad -v$$

$$n \in [2, 4]$$

سبب صیغہ معادله هواريه مثبت است

$$\text{if } n=2 \rightarrow -n^r + 4n^r + 25n - 100 < 0 \quad \text{نقن}$$

$$\text{if } n=4 \rightarrow \sqrt{r} = r \quad \text{نقن} \rightarrow n+r = 4+r=9 \Rightarrow \text{معادله یکن جواب دارد}$$

$$y = \begin{cases} r_{n+1} & : n \geq 1 \\ r & : -r \leq n \leq 1 \\ -r_{n-1} & : n \leq -r \end{cases} \quad y = \frac{1V-n}{r}$$

(5)

$$n \geq 1 \rightarrow r_{n+1} = \frac{1V-n}{r} \Rightarrow y_{n+1} + r = 1V-n$$

$$Vn = 1F \Rightarrow n = r, y = \Delta \quad \cup \cup$$

$$-r \leq n \leq 1 \rightarrow \frac{1V-n}{r} = r \rightarrow 1V-n = r \rightarrow n = 1 \quad \cup \cup \bar{E}$$

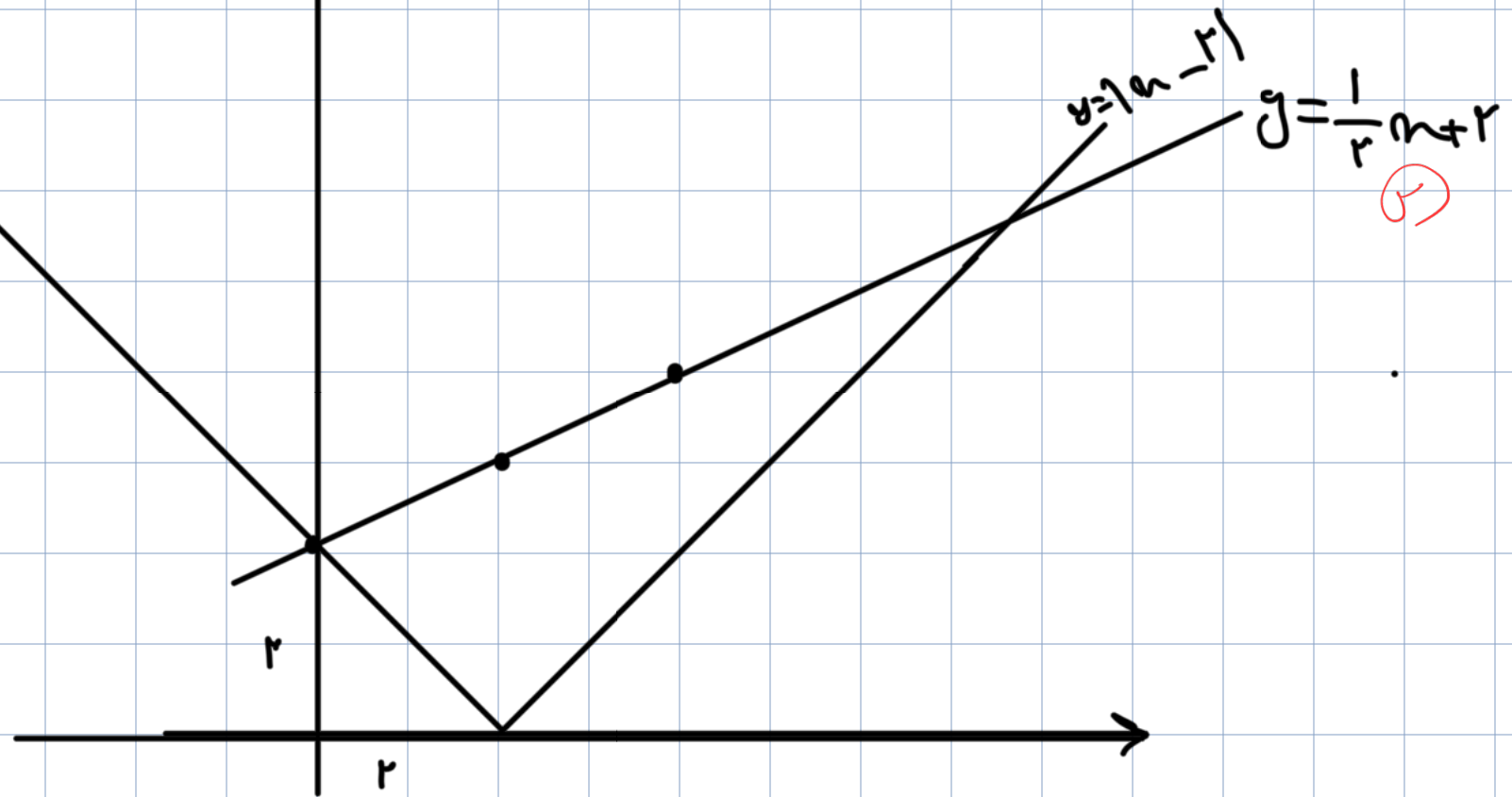
$$n \leq -r \rightarrow -r_{n-1} = \frac{1V-n}{r} \rightarrow -y_{n-1} + r = 1V-n \rightarrow$$

$$\Delta n = -r_0 \rightarrow n = -r, y = V \quad \cup \cup$$

$$A(r, \Delta) - B(-r, V) \rightarrow AB = \sqrt{(r - (-r))^2 + (\Delta - V)^2} =$$

$$\sqrt{r_0} = r\sqrt{10}$$

$$\sqrt{n^2 - r^2} + r = \sqrt{(n-r)^2} = |n-r| \quad -9$$



$$n > r \rightarrow \frac{1}{r}n + r = n - r \rightarrow r = \frac{1}{r}n \rightarrow n = 1, y = 4$$

$$n < r \rightarrow \frac{1}{r}n + r = r - n \rightarrow n = 0, y = r$$

r	0	1
0	r	1
1	4	1

$$\rightarrow \frac{1}{r} (\underbrace{1 \cdot 4 + 1 \cdot r + 0 - r - 0 - 0}_{r \cdot r}) = 1r$$

$$r = n$$

$$n + r = 4$$

$$\frac{1}{n} + \frac{1}{n+r} = \frac{1}{r_0} \rightarrow \frac{\overbrace{n+n+r}^{r+n+r}}{n^2 + rn} = \frac{1}{r_0}$$

-10

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$$K_0 n + 1\Lambda_0 = n^2 + 9n \rightarrow n^2 - 71n - 1\Lambda_0 = 0$$

$$\frac{71 \pm 71}{2} \rightarrow \begin{array}{l} n = 71 \\ n = -2 \end{array}$$