

مسئله

$$9(2x^2 - 2x + 1) = 140x^2(x-1)^2$$

$$\frac{(x-1)^2 + x^2}{x^2(x-1)^2} = \frac{140}{9} \Rightarrow 140x^2 - 280x + 140 = 9x^2(x-1)^2$$

$$\Rightarrow \frac{x^2 - 2x + 1}{x^2} = \frac{140}{9} \Rightarrow \frac{1}{x} - \frac{2}{x} + \frac{1}{x} = \frac{140}{9} \Rightarrow \frac{2}{x} = \frac{140}{9} \Rightarrow x = \frac{9}{70}$$

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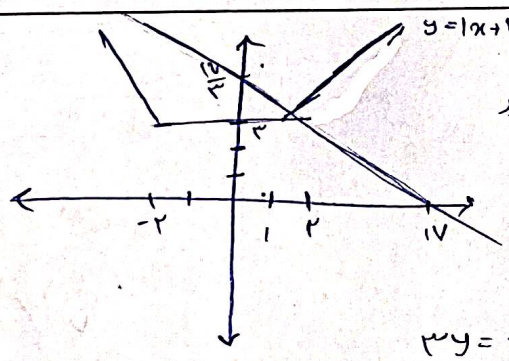
اول رانده ها

$$\begin{aligned} ① \quad x+2 \geq 0 &\Rightarrow x \geq -2 \\ ② \quad -(x^2 - 4x + 4) \geq 0 &\Rightarrow -(x-2)^2 \geq 0 \Rightarrow x=2 \\ ③ \quad -(x^2 - 4x + 4) \geq 0 &\Rightarrow -(x-2)^2 \geq 0 \Rightarrow x=2 \end{aligned}$$

استدک رانده ها

$$\begin{aligned} ① \quad (x+2)(x-2) &= \{4\} \\ \sqrt{4+5} + \sqrt{14+5} &= 2+5 \\ 9 &= 9 \end{aligned}$$

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$$\begin{aligned} y &= |x+2| + |x-1| \\ 2x+1 &= -\frac{1}{x} + \frac{17}{x} \Rightarrow A \left| \frac{17}{x} \right. \\ -2x-1 &= \frac{1}{x} + \frac{17}{x} \Rightarrow B \left| -\frac{17}{x} \right. \end{aligned}$$

$$3y = -x+17 \Rightarrow y = -\frac{1}{3}x + \frac{17}{3}$$

$$AB = \sqrt{(4+17)^2 + (2+5)^2} = \sqrt{180} = 6\sqrt{5}$$

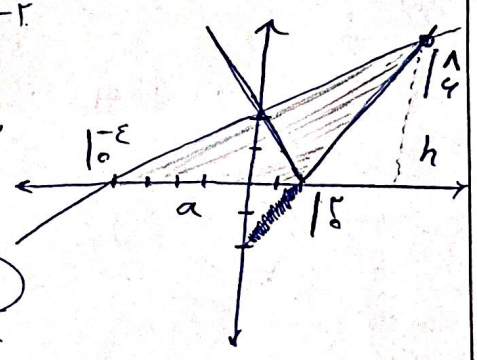
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$$y = \sqrt{x^2 - 4x + 4} = \sqrt{(x-2)^2} = |x-2|$$

$$y' = \frac{1}{x} + 2$$

x	-1	0	1	2
y				

$$S = \frac{h \times a}{2} = \frac{9 \times 9}{2} = 40.5$$



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زمان بروز
زمان نرهار

$$\frac{1}{20} = \frac{1}{x} + \frac{1}{x+9} \Rightarrow \frac{x+9}{x^2+9x} = \frac{1}{20} \Rightarrow 20x+180 = x^2+9x \Rightarrow x^2-11x-180=0$$

حدود باجم

$$20x+180 = x^2+9x \Rightarrow x^2-11x-180=0 \Rightarrow (x-20)(x+9)=0$$

$$\begin{aligned} x &= 20 \text{ یا } x = -9 \\ x &= 20 \text{ یا } x = -9 \end{aligned}$$

بروز به تنهایی در 36 ساعت کار انجام می دهد!

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$$w = \varepsilon$$

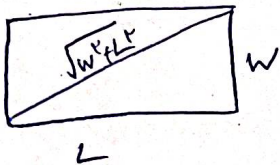
$$L = a$$

$$\frac{L}{w} = \frac{L+w}{L} \Rightarrow \frac{a+\varepsilon}{\varepsilon} = \frac{\sqrt{a}+1}{2} \Rightarrow$$

$$10+2\varepsilon = \varepsilon + \varepsilon\sqrt{a} \Rightarrow \varepsilon = 2\sqrt{a}-3 = L'$$

$$\frac{S'}{S} = \frac{(2\sqrt{a}-3)\varepsilon}{a \times \varepsilon} = \frac{2\sqrt{a}-3}{a}$$

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$$w^2 + L^2 = (\text{قطر})^2 \Rightarrow \text{قطر} = \sqrt{w^2 + L^2}$$

$$\frac{\sqrt{w^2 + L^2}}{L} = \frac{1+\sqrt{a}}{2} \Rightarrow \varepsilon w^2 + \varepsilon L^2 = L^2(1+\sqrt{a}) \Rightarrow$$

$$\varepsilon w^2 = L^2(1+\sqrt{a}) \Rightarrow \frac{L^2}{w^2} = \frac{2}{1+\sqrt{a}} \approx 0.4118$$

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$$\sqrt{2a^2 + \varepsilon a} = 2 - 3a \quad \left\{ \begin{array}{l} 2a^2 + \varepsilon a \geq 0 \\ a \geq 0 \\ a \leq 2 \end{array} \right. \quad \left\{ \begin{array}{l} 9a^2 - 12a + \varepsilon \geq 0 \\ 0.5a \leq \frac{2}{3} \end{array} \right.$$

می توانیم

$$\rightarrow 2a^2 + \varepsilon a = 9a^2 - 12a + \varepsilon \Rightarrow 7a^2 - 14a + \varepsilon = 0 \quad \Delta = 14\varepsilon$$

$$\frac{a+1}{a} = \frac{\frac{2}{3}+1}{\frac{2}{3}} = \frac{\frac{5}{3}}{\frac{2}{3}} = \frac{5}{2} = \varepsilon, a$$

$$\left\{ \begin{array}{l} a_1 = \frac{14-12}{14} = \left(\frac{2}{7}\right) \checkmark \\ a_2 = \frac{14+12}{14} = 2 \times \end{array} \right. \quad \begin{array}{l} \text{حاصل می شود} \\ \text{در جواب} \\ \text{دارد} \end{array}$$

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$$\frac{\sqrt{n+1}(2-\sqrt{n-1}) - \sqrt{n+1}(2+\sqrt{n-1})}{2-(n-1)} = 0 = \frac{n-1}{\sqrt{n-1}} \rightarrow n=1 \times$$

$$\left\{ \begin{array}{l} \sqrt{n+1} \rightarrow n \geq -1 \\ \sqrt{n-1} \rightarrow n \geq 1 \end{array} \right. \quad \left\{ \begin{array}{l} n \geq 1 \end{array} \right. \quad \begin{array}{l} \text{در ادامه می بینیم} \\ \text{اما صریح را می بینیم} \\ \text{پس خنثی است!} \end{array}$$

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

$$\left\{ \begin{array}{l} x = 2\varepsilon + \sqrt{192} \\ x_2 = \frac{2\varepsilon - \sqrt{192}}{2} \end{array} \right. \quad \begin{array}{l} \checkmark \\ \checkmark \end{array}$$

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$$\frac{2-\sqrt{n-2} - 2-\sqrt{n-2}}{\varepsilon - (2-n)} = \frac{2-n}{a\sqrt{2-n}} \Rightarrow \frac{-2\sqrt{2-n}}{2+n} = \frac{2-n}{a\sqrt{2-n}} \Rightarrow n^2 + 10n - 2\varepsilon = 0$$

$$\text{دامنه } D \rightarrow n > 2$$

$$(n+12)(n-2) = 0$$

$$\left\{ \begin{array}{l} n=2 \times \\ n=-12 \checkmark \end{array} \right. \quad \begin{array}{l} \text{در ادامه نیست} \\ \text{خنثی} \\ \text{حق} \end{array}$$

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$$\left\{ \begin{array}{l} \text{ریشه مثبت} \\ \text{منفی} \end{array} \right. \quad \begin{array}{l} \text{نادر} \\ \text{جواب} \end{array}$$