

رادین مکملان یازدهم

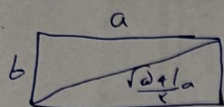
عالم نفستر!

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(۱)

$$\begin{aligned} S_2 &= L_2 \times W \\ S_1 &= L_1 \times W \\ \Rightarrow \frac{S_2}{S_1} &= \frac{L_2 \times W}{L_1 \times W} = \frac{\frac{1+\sqrt{5}}{2} W}{\frac{5}{2} W} = \frac{2+2\sqrt{5}}{5} = \frac{2+\sqrt{5}}{5} \end{aligned}$$

(۲)



$$\begin{aligned} a^2 + b^2 &= \frac{5+2\sqrt{5}}{2} a^2 \Rightarrow b^2 = \frac{2+2\sqrt{5}}{2} a^2 \Rightarrow \frac{a^2}{b^2} = \frac{2}{2+2\sqrt{5}} = \frac{1}{\sqrt{5}+1} \\ &= \frac{\sqrt{5}-1}{4} = \frac{\sqrt{5}-1}{4} \end{aligned}$$

(۳)

$$4a^2 - 2 = -\sqrt{5}a^2 + 5a \Rightarrow 4a^2 - 12a + 5 = 2a^2 + 5a \Rightarrow 2a^2 - 19a + 5 = 0$$

(۴)

$$a^2 - 19a + 25 = (a-14)(a-5) = 0 \Rightarrow a = \frac{19 \pm \sqrt{19^2 - 100}}{2} = \frac{19 \pm \sqrt{261}}{2}$$

$$a = 2 \Rightarrow 5 = -5 \text{ غلط} \quad a = \frac{19}{2} \Rightarrow -\frac{1}{2} = -\frac{1}{2} \checkmark \Rightarrow \frac{a+1}{a} = \frac{\frac{19}{2}+1}{\frac{19}{2}} = \frac{21}{19} = \frac{21}{19} - 5, 0$$

$$\frac{\sqrt{2+1}}{\sqrt{2-1+2}} - \frac{\sqrt{2+1}}{2-\sqrt{2-1}} = \frac{2-1}{\sqrt{2-1}} \Rightarrow (\sqrt{2+1}) \left(\frac{1}{\sqrt{2-1+2}} - \frac{1}{2-\sqrt{2-1}} \right) = \frac{(\sqrt{2-1})(2-1)}{\sqrt{2-1}}$$

(۵)

$$\Rightarrow \sqrt{2+1} \left(\frac{1}{\sqrt{2-1+2}} - \frac{1}{2-\sqrt{2-1}} \right) = \sqrt{2-1} \Rightarrow \sqrt{2+1} \left(\frac{2-\sqrt{2-1}-\sqrt{2-1}-2}{2-2+1} \right)$$

$$= \sqrt{2+1} \left(\frac{-2\sqrt{2-1}}{1} \right) = \sqrt{2-1} \Rightarrow -2\sqrt{2+1} = 10-2 \Rightarrow 5a + 5 = 2^2 - 10a + 100$$

$$\Rightarrow a^2 - 25a + 99 = 0 \Rightarrow a = \frac{25 \pm \sqrt{25^2 - 396}}{2} \Rightarrow a = 12 + 5\sqrt{3}$$

(۶) (۷)

$$\frac{1}{\sqrt{2-a+2}} + \frac{1}{\sqrt{2-a-2}} = \frac{2-a}{\sqrt{2-a}} \xrightarrow{t=\sqrt{2-a}} \frac{1}{t+2} + \frac{1}{t-2} = \frac{t^2}{2t}$$

(۸)

$$\xrightarrow{t \neq 0} \frac{t-2+t+2}{t^2-4} = \frac{t}{2} \Rightarrow \frac{2t}{t^2-4} = \frac{t}{2} \Rightarrow \frac{2}{t^2-4} = \frac{1}{2} \Rightarrow t^2-4 = 4$$

$$\Rightarrow t = \pm \sqrt{8} \Rightarrow t = \sqrt{8} = 2\sqrt{2} \Rightarrow a = -11 \xrightarrow{2)0} \text{صحیح نیستی ندارد}$$

$$\frac{1}{2^x} + \frac{1}{(1-x)^x} = \frac{190}{9} \Rightarrow \frac{(1-x)^x + 1^x}{2^x(1-x)^x} = \frac{190}{9} \Rightarrow \frac{1^x - 2^x + 1}{2^x(2-1)^x} = \frac{190}{9}$$

(2)

$$\Rightarrow \frac{1(2^x - 2) + 1}{(2^x - 2)^x} = \frac{190}{9} \stackrel{2^x - 2 = t}{\Rightarrow} \frac{1t + 1}{t^x} = \frac{190}{9} \Rightarrow \frac{t^x + 1t + 1}{t^x} = \frac{190}{9}$$

$$\Rightarrow \left(\frac{t+1}{t}\right)^x = \left(\frac{190}{9}\right)^x \Rightarrow \frac{t+1}{t} = \frac{190}{9} \Rightarrow \frac{1}{t} = \frac{190}{9} \Rightarrow t = \frac{9}{190}$$

$$\Rightarrow \frac{t+1}{t} = \frac{190}{9} \Rightarrow \frac{1}{t} = \frac{190}{9} \Rightarrow t = \frac{9}{190}$$

$$\Rightarrow 2^x - 2 = \frac{9}{190} \Rightarrow 2^x - 2 - \frac{9}{190} = 0 \stackrel{\Delta > 0}{\Rightarrow} 5 = \frac{-b}{a} = 1$$

$$\Rightarrow 2^x - 2 = \frac{9}{190} \Rightarrow 2^x - 2 + \frac{9}{190} = 0 \stackrel{\Delta > 0}{\Rightarrow} 5 = \frac{-b}{a} = 1$$

$$x = 1 \Rightarrow 2^1 - 2 = 0 \checkmark$$

$$\sqrt{2 + \sqrt{-2^x + 2^x + 2^x + 100}} + \sqrt{2^x + \sqrt{-2^x + 2^x + 1}} \geq 2 + \sqrt{2}$$

(2)

$$-2^x + 2^x + 2^x + 100 > 0$$

$$2^x(2-2) - 2(2-2) > 0$$

$$-2^x + 2^x + 1 > 0$$

$$\Rightarrow 2^x - 2^x + 1 > 0$$

$$(2-2)(2-2) < 0$$

$$\frac{x}{x} = \frac{1}{1}$$

$$[1, 1] \text{ (II)}$$

$$(2^x - 2)(2 - 2) > 0 \Rightarrow (2 - 2)(2 - 2)(2 - 2) > 0$$

$$\frac{-a}{a} \quad \frac{1}{1} \quad \frac{a}{a}$$

$$I \cap II \Rightarrow \{1\}$$

$$(-\infty, -a] \cup [1, a) \text{ (I)}$$

$$2 = \sqrt{1} + \sqrt{1} = 1 + 1$$

$$\Rightarrow 1 + 1 = 2 \checkmark$$

$$x = 1 \Rightarrow 2 = 2 \checkmark$$

$$y = |2x+1| + |x-1| \Rightarrow \begin{cases} y = 2x+1 & x \geq 1 \\ y = 2x & -1 \leq x \leq 1 \\ y = -2x-1 & x \leq -1 \end{cases}$$

(2)

$$xy + 2 = 14 \Rightarrow y = -\frac{1}{x}x + \frac{14}{x}$$

$$x \geq 1 \Rightarrow 1 \leq 2x+1 \leq -\frac{1}{x} + \frac{14}{x} \Rightarrow 4 \leq 2x+1 \leq -\frac{1}{x} + \frac{14}{x} \Rightarrow 4 \leq 2x+1 \leq -\frac{1}{x} + \frac{14}{x} \Rightarrow 4 \leq 2x+1 \leq -\frac{1}{x} + \frac{14}{x}$$

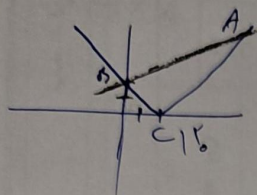
$$-1 \leq x \leq 1 \Rightarrow x = -\frac{1}{x}x + \frac{14}{x} \Rightarrow -x + 14 = 4 \Rightarrow x = 1 \text{ ODE}$$

$$x \leq -1 \Rightarrow -x-1 \leq -\frac{1}{x}x + \frac{14}{x} \Rightarrow -x-1 \leq -\frac{1}{x}x + \frac{14}{x} \Rightarrow -x-1 \leq -\frac{1}{x}x + \frac{14}{x} \Rightarrow -x-1 \leq -\frac{1}{x}x + \frac{14}{x}$$

$$y = 2x \Rightarrow A \left| \frac{1}{x} \right|, B \left| \frac{-1}{x} \right| \Rightarrow AB = \sqrt{4^2 + (-1)^2} = \sqrt{17} = \sqrt{17} \checkmark$$

$$g = \sqrt{2^2 - 4 - 5} = \sqrt{(2-1)^2} = |2-1| \Rightarrow \begin{cases} x-2 & 2 \geq 1 \\ -x+2 & 2 \leq 1 \end{cases}$$

$$g = \frac{1}{x} x + 2$$



$$2 \geq 1 \Rightarrow 2-2 = \frac{1}{x} x + 2 \Rightarrow \frac{1}{x} x = 0 \Rightarrow x = 1 \quad \vec{OO}$$

$$2 \leq 1 \Rightarrow -2+2 = \frac{1}{x} x + 2 \Rightarrow -2 = \frac{1}{x} x \Rightarrow x = 0 \quad \vec{OO}$$

$$A|_g \quad B|_g$$

$$BC \perp g \Rightarrow y + x - 2 = 0$$

$$AH = \frac{|4+1-2|}{\sqrt{2}} = \frac{3}{\sqrt{2}} = \frac{3\sqrt{2}}{2}$$

$$BC = \sqrt{1^2 + (-1)^2} = \sqrt{2} = \sqrt{2}$$

$$S = \frac{AH \cdot BC}{2} = \frac{\frac{3\sqrt{2}}{2} \times \sqrt{2}}{2} = \frac{3}{2} \checkmark$$

$$\frac{1}{x} + \frac{1}{x+9} = \frac{1}{x_0} \Rightarrow \frac{x+9}{x^2+9x} = \frac{1}{x_0} \Rightarrow x^2+9x = 60x+110$$

$$\Rightarrow x^2-51x-110=0 \Rightarrow (x-54)(x+2) = 0 \Rightarrow \underbrace{x=54}_{\downarrow} \quad \frac{x_2-d}{\vec{OE}}$$

✓ wdh - irr.
Esh - 60