

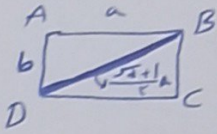
۲۵ عالی نوشتی!

$$S_r = L_r \times w$$

$$S_1 = L_1 \times w$$

$$\Rightarrow \frac{S_r}{S_1} = \frac{L_r \times w}{L_1 \times w} = \frac{\frac{1+\sqrt{5}}{2} \times \frac{1}{2}}{\frac{1}{2}} = \frac{1+\sqrt{5}}{2} = \frac{r+\sqrt{5}}{2} \quad \checkmark$$

۱- (۲)



$$a^2 + b^2 = \frac{r+\sqrt{5}}{2} a^2 \Rightarrow b^2 = \frac{r+\sqrt{5}}{2} a^2 \Rightarrow \frac{a^2}{b^2} = \frac{2}{r+\sqrt{5}} = \frac{2}{\sqrt{5}+1} \quad \checkmark$$

$$= \frac{\sqrt{5}-1}{2} \quad \checkmark$$

۲- (۲)

$$ra - r = -\sqrt{ra^2 + ra} \quad (1)^r \Rightarrow 9a^2 - 12a + r = ra^2 + ra \Rightarrow va^2 - 12a + r = 0$$

$$\Rightarrow a^2 - 12a + r = 0 \Rightarrow (a-6)(a-r) = 0 \Rightarrow a = \frac{12}{2} = 6 \quad \checkmark \quad a = \frac{r}{2}$$

$$a=r \Rightarrow r = -4 \quad \checkmark$$

$$a = \frac{r}{2} \Rightarrow -\frac{1}{2} = -\frac{1}{2} \quad \checkmark \Rightarrow \frac{a+1}{a} = \frac{9}{2} = \frac{9}{2} = \frac{9}{2} \quad \checkmark$$

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

۳- (۲)

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

$$\Rightarrow -2\sqrt{n+1} = 10-n \quad (1)^r \Rightarrow r^2 n + r = n^2 - 20n + 100 \Rightarrow n^2 - 22n + 99 = 0$$

$$\Rightarrow n = \frac{22 \pm \sqrt{196}}{2} \quad (I) \Rightarrow n = 12 + 10 = 22 \rightarrow \text{معادله درجه دوم دارد} \quad \checkmark$$

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

$$\Rightarrow \frac{t-r+t+r}{t^2-r} = \frac{t}{\sqrt{t^2}} \Rightarrow \frac{2t}{t^2-r} = \frac{t}{t} \Rightarrow \frac{2}{t^2-r} = \frac{1}{t} \Rightarrow t^2-r=10$$

$$\Rightarrow t^2=14 \Rightarrow t = \pm \sqrt{14} \Rightarrow t = \sqrt{14} = \sqrt{r-n} \Rightarrow n = -12 \quad \checkmark$$

معادله درجه دوم
منفی ندارد

$$\frac{1}{n^r} + \frac{1}{(1-n)^r} = \frac{160}{9} \Rightarrow \frac{(1-n)^r + n^r}{n^r(1-n)^r} = \frac{160}{9} \Rightarrow \frac{2n^r - 2n + 1}{n^r(n+1)^r} = \frac{160}{9}$$

$$\Rightarrow \frac{2(n^r-n)+1}{(n^r-n)^r} = \frac{160}{9} \Rightarrow \frac{2t+1}{t^r} = \frac{160}{9} \Rightarrow \frac{2t^r+2t+1}{t^r} = \frac{160}{9}$$

$$\Rightarrow \left(\frac{t+1}{t} \right)^r = \left(\frac{160}{9} \right)^r \Rightarrow \begin{cases} \frac{t+1}{t} = \frac{160}{9} \Rightarrow \frac{1}{t} = \frac{160}{9} \Rightarrow t = \frac{9}{160} \quad (I) \\ \frac{t+1}{t} = -\frac{160}{9} \Rightarrow \frac{1}{t} = -\frac{160}{9} \Rightarrow t = -\frac{9}{160} \quad (II) \end{cases}$$

$$(I) \quad n^r - n = \frac{9}{160} \Rightarrow n^r - n - \frac{9}{160} = 0 \Rightarrow S = \frac{-b}{a} = 1$$

$$(II) \quad n^r - n = -\frac{9}{160} \Rightarrow n^r - n + \frac{9}{160} = 0 \Rightarrow S = \frac{-b}{a} = 1 \quad \left(\frac{1+\sqrt{160}}{2} \neq \frac{1+\sqrt{160}}{2} \right)$$

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$$\sqrt{x + \sqrt{-x^2 + 4x + 100}} + \sqrt{x + \sqrt{-x^2 + 9x - 1}} = x + 2$$

$$-x^2 + 4x + 100 \geq 0$$

$$x^2 - 4x - 100 \leq 0$$

$$(x^2 - 4x - 100) \geq 0 \Rightarrow (x - 2)(x + 8)(x - 12) \geq 0$$

$$\rightarrow \begin{array}{c} - & + & - & + & - \\ \hline & - & + & - & + \end{array}$$

$$(-\infty, -8] \cup [2, 12] \quad (I)$$

$$-x^2 + 9x - 1 \geq 0$$

$$\Rightarrow x^2 - 9x + 1 \leq 0$$

$$(x - 4.5)(x - 0.22) \leq 0$$

$$\frac{2}{1} \quad \frac{1}{0.22}$$

$$[2, 4.5] \quad (II)$$

$$(I) \cap (II) \Rightarrow \{2\}$$

$$x=2 \Rightarrow \sqrt{2 + \sqrt{-2^2 + 4 \cdot 2 + 100}} + \sqrt{2 + \sqrt{-2^2 + 9 \cdot 2 - 1}} = 2 + 2$$

$$\Rightarrow 2 + 2 = 4 \quad \text{قق}$$

معادله فقط 1 جواب دارد (x=2)

$$y = (x+2) + |x-1| \rightarrow \begin{cases} y = 2x+1 & x \geq 1 \\ y = 2 & -1 \leq x < 1 \\ y = -2x-1 & x < -1 \end{cases}$$

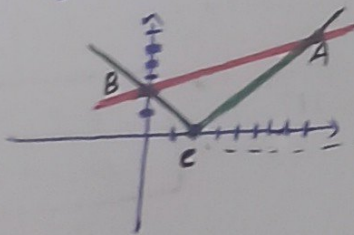
$$3y + x = 10 \Rightarrow y = -\frac{1}{3}x + \frac{10}{3}$$

$$\begin{cases} x \geq 1 \Rightarrow 2x+1 = -\frac{1}{3}x + \frac{10}{3} \Rightarrow 5x+3 = -x+10 \Rightarrow 6x=7 \Rightarrow x=\frac{7}{6} \Rightarrow y=\frac{17}{6} \\ -1 \leq x < 1 \Rightarrow 2 = -\frac{1}{3}x + \frac{10}{3} \Rightarrow -x+10=6 \Rightarrow x=4 \Rightarrow \text{قق غ} \\ x < -1 \Rightarrow -2x-1 = -\frac{1}{3}x + \frac{10}{3} \Rightarrow -5x-3 = -x+10 \Rightarrow -4x=13 \Rightarrow x=-\frac{13}{4} \Rightarrow y=\frac{17}{4} \end{cases}$$

$$\Rightarrow A \begin{vmatrix} 2 & 1 \\ 0 & 1 \end{vmatrix}, B \begin{vmatrix} -1 & 2 \\ 0 & 1 \end{vmatrix} \Rightarrow AB = \sqrt{(x_A - x_B)^2 + (y_A - y_B)^2} = \sqrt{(2-(-1))^2 + (1-2)^2} = \sqrt{10} = 2\sqrt{5}$$

$$y = \sqrt{x^2 - 4x + 4} = \sqrt{(x-2)^2} = |x-2| \rightarrow \begin{cases} x-2 & x \geq 2 \\ -x+2 & x < 2 \end{cases}$$

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



$$\begin{cases} x \geq 2 \Rightarrow x-2 = \frac{1}{2}x + 2 \Rightarrow \frac{1}{2}x = 4 \Rightarrow x=8 \Rightarrow y=6 \\ x < 2 \Rightarrow -x+2 = \frac{1}{2}x + 2 \Rightarrow -x = \frac{1}{2}x \Rightarrow x=0 \Rightarrow y=2 \end{cases}$$

$$BC: y = -x+2 \Rightarrow y+x-2=0$$

$$\overline{AH} = \frac{|4+8-2|}{\sqrt{2}} = \frac{10}{\sqrt{2}} = 5\sqrt{2}$$

$$\overline{BC} = \sqrt{(4-0)^2 + (4-2)^2} = \sqrt{20} = 2\sqrt{5}$$

$$\Rightarrow S = \frac{\overline{AH} \times \overline{BC}}{2} = \frac{5\sqrt{2} \times 2\sqrt{5}}{2} = 5\sqrt{10}$$

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

$$\Rightarrow x^2 - 11x - 180 = 0 \Rightarrow (x-18)(x+10) = 0 \Rightarrow x=18 \quad \text{قق غ}$$

بهر روز به تنهایی در 3 ساعت و
فریاد به تنهایی در 5 ساعت
تک معلم را تایید می کند.