نام و نام خانوادگی ...[illegible]... پاسخنامه تشریحی تکلیف شماره ۱۸ ... کلاس ...یازدهم...دهم...

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نسبت طلایی $\rightarrow \frac{L}{W} = \frac{\sqrt{5}+1}{2} \rightarrow \frac{L_1+x}{W_1} = \frac{\sqrt{5}+1}{2} = \frac{L_1+x}{2\times\frac{4}{5}L_1} = \frac{\sqrt{5}+1}{2} \rightarrow$

$\frac{L_1}{W_1} = \frac{5}{4} \rightsquigarrow W_1 = \frac{4}{5}L_1 \rightarrow \frac{2\sqrt{5}}{5}L_1 + \frac{2}{5}L_1 = L_1 + x \rightarrow x = \frac{2\sqrt{5}-3}{5}L_1$

$\frac{\text{نسبت مساحت‌های}}{\text{نسبت اولیه}} = \frac{L_1+x \times \cancel{W_1}}{\cancel{W_1}\times L_1} = \frac{\frac{(2\sqrt{5}-3)}{5}L_1 + L_1}{L_1} = \frac{\cancel{L_1}\left(\frac{2\sqrt{5}-3+5}{5}\right)}{\cancel{L_1}} = \frac{2\sqrt{5}+2}{5}$

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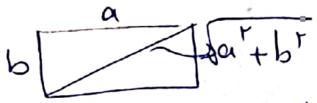
$\frac{\text{قطر}}{\text{ضلع}} = \frac{\sqrt{5}+1}{2} \rightarrow \frac{\sqrt{a^2+b^2}}{a} = \frac{\sqrt{5}+1}{2} \rightsquigarrow \frac{a^2+b^2}{a^2} = \frac{6+2\sqrt{5}}{4} \rightarrow 2(3+\sqrt{5})$

$\rightarrow 3a^2 + \sqrt{5}a^2 = 2a^2 + 2b^2 \rightarrow 2b^2 = \underbrace{a^2+\sqrt{5}a^2}_{a^2(1+\sqrt{5})} \rightarrow b^2 = \frac{(1+\sqrt{5})a^2}{2}$



$\frac{a^2}{b^2} = \frac{\cancel{a^2}}{\cancel{a^2}\frac{(1+\sqrt{5})}{2}} = \frac{2\times(1-\sqrt{5})}{(1+\sqrt{5})(1-\sqrt{5})} = \frac{2-2\sqrt{5}}{-4} = \frac{\sqrt{5}-1}{2}$

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$3a + \sqrt{2a^2+4a} = 2 \rightarrow \sqrt{2a^2+4a} = 2-3a \rightarrow 2a^2+4a = 4+9a^2-12a$

$7a^2 - 16a + 4 = 0 \rightarrow a^2 - 16a + 28 = 0$

$(a-14)(a-2) = 0$

$a = \frac{14}{7} = 2 \quad a = \frac{2}{7}$

جواب نمی‌دهد — جواب می‌دهد

$\frac{a+1}{a} = \frac{\frac{2}{7}+1}{\frac{2}{7}} = \frac{\frac{9}{7}}{\frac{2}{7}} = \frac{9}{2}$

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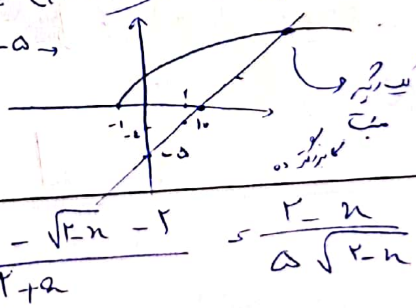
$\frac{\sqrt{x+1}}{\sqrt{x-1}+3} - \frac{\sqrt{x+1}}{3-\sqrt{x-1}} = \frac{x-1}{\sqrt{x-1}} \rightsquigarrow \frac{3\cancel{\sqrt{x+1}} - \sqrt{(x+1)(x-1)} - 3\cancel{\sqrt{x+1}} - \sqrt{(x+1)(x-1)}}{(3-\sqrt{x-1})(3+\sqrt{x-1}) = 9-(x-1)} = \frac{x-1}{\sqrt{x-1}}$ 4

$\frac{-2\sqrt{x+1}\sqrt{x-1}}{9-x+1} = \frac{x-1}{\sqrt{x-1}} \rightsquigarrow -2\sqrt{x+1}\,\cancel{(x-1)} = (10-x)\cancel{(x-1)} \rightarrow -2\sqrt{x+1} = 10-x$

$10-x \quad\quad x \neq 1 \quad\quad \sqrt{x+1} = \frac{1}{2}x - 5$

$9 \neq x-1 \rightarrow x \neq 10$

$x \neq 1$



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$\frac{1}{\sqrt{2-x}+2} - \frac{1}{2-\sqrt{2-x}} = \frac{2-x}{5\sqrt{2-x}} \rightsquigarrow \frac{2-\sqrt{2-x} - \sqrt{2-x} - 2}{\underset{(2-\sqrt{2-x})(2+\sqrt{2-x})}{4-2+x}} = \frac{2-x}{5\sqrt{2-x}}$ 5

$= \frac{-2\sqrt{2-x}}{2+x} = \frac{2-x}{5\sqrt{2-x}}$

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$-10(2-x) = 4-x^2 \qquad x^2 + 10x - 24 = 0$

$-20 + 10x = 4 - x^2 \rightarrow (x+12)(x-2) = 0 \longrightarrow$ صفر ریشه مخرج (غیرقابل قبول)

$x = -12 \quad x = 2$

مخرج را صفر می‌کند — جواب مثبت

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$$\frac{1}{x^2}+\frac{1}{(1-x)^2}=\frac{140}{9} \rightarrow \frac{2x^2-2x+1}{x^2(1-x)^2}=\frac{140}{9} \rightarrow \frac{2(x^2-x)+1}{(-x^2+x)^2}=\frac{140}{9} \rightarrow \frac{2(x^2-x)+1}{(x^2-x)^2}=\frac{140}{9}, \quad x^2-x=t$$

$$\frac{2t+1}{t^2}=\frac{140}{9} \rightarrow 140t^2-18t-9=0 \rightarrow \sqrt{\Delta}=78 \rightarrow t=\frac{18\pm 78}{140\times 2}=\begin{cases} t=\frac{3}{10} \\ t=-\frac{3}{14}\end{cases}$$

$$\left.\begin{aligned} x^2-x=\frac{3}{10} &\rightarrow x^2-x-\frac{3}{10}=0,\ \xrightarrow{\Delta>0} S=1 \\ x^2-x=-\frac{3}{14} &\rightarrow x^2-x+\frac{3}{14}=0,\ \xrightarrow{\Delta>0} S=1 \end{aligned}\right\} S_{کل}=1+1=2$$

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$$\sqrt{x+\sqrt{-x^3+4x^2+25x-100}}+\sqrt{x^2+\sqrt{-x^2+6x-8}}=x+2$$

$$-x^3+4x^2+25x-100=-(x^3-4x^2-25x+100)=-(x^2-25)(x-4)\geq 0 \rightarrow \begin{array}{c|ccccccc} & & -5 & & 4 & & 5 & \\ \hline & + & & - & & + & & - \end{array} \rightarrow (-\infty,-5]\cup[4,5]$$

$$x=\pm 5,\quad x=4$$

$$-x^2+6x-8=-(x^2-6x+8)=-(x-4)(x-2)\geq 0 \rightarrow \begin{array}{c|ccccc} & & 2 & & 4 & \\ \hline & - & & + & & - \end{array} \rightarrow [2,4]$$

$$\xrightarrow{اشتراک} \{4\} \rightarrow \sqrt{4+\sqrt{-(16-25)(0)}}+\sqrt{16+\sqrt{-(0)(2)}} \stackrel{?}{=} 4+2$$

$$\sqrt{4}+\sqrt{16}\stackrel{?}{=}6 \rightarrow 2+4=6 \longrightarrow \underbrace{\boxed{x=4}}_{یک\ جواب}$$

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$$y=|x+2|+|x-1| \qquad \begin{array}{c|c|c} & -2 \quad & \quad 1 \\ -2-x+1-x=-2x-1 & x+2+1-x=3 & x+2+x-1=2x+1 \\ & 3 & 3 \end{array}$$

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

$$x\geq 1: \quad 2x+1=-\frac{1}{3}x+\frac{17}{3} \rightarrow \frac{7}{3}x=\frac{14}{3} \rightarrow x=2,\ y=5 \rightarrow A:(2,5)$$

$$-2\leq x<1: \quad 3=-\frac{1}{3}x+\frac{17}{3} \rightarrow \frac{1}{3}x=\frac{8}{3} \rightarrow x=8 \times$$

$$x<-2: \quad -2x-1=-\frac{1}{3}x+\frac{17}{3} \rightarrow -\frac{5}{3}x=\frac{20}{3} \rightarrow x=-4,\ y=7 \rightarrow B:(-4,7)$$

$$\text{اندازه } AB=\sqrt{\Delta x^2+\Delta y^2}=\sqrt{6^2+(-2)^2}=\sqrt{36+4}=\sqrt{40}=2\sqrt{10}$$

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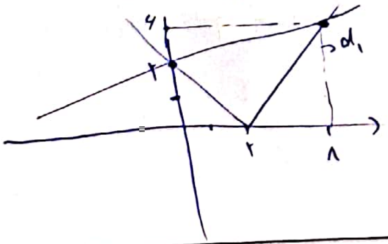
$$y=\sqrt{x^2-4x+4}=\sqrt{(x-2)^2}=|x-2|,\ d_1$$

$$y=\frac{1}{2}x+2 \rightarrow d_2$$

$$\frac{1}{2}x+2=x-2 \rightarrow \frac{1}{2}x=4 \rightarrow x=8 \rightarrow y=6$$

$$\frac{1}{2}x+2=2-x=\frac{3}{2}x=0 \rightarrow x=0,\ y=2$$



$$(2,0)(8,6)(0,2) \rightarrow \begin{vmatrix} 2 & 0 & 1 \\ 8 & 6 & 1 \\ 0 & 2 & 1 \end{vmatrix}=0+4+0-12-16=-24$$

$$\text{مساحت}=\frac{1}{2}\times|-24|=12$$

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زمان بهروز $\rightarrow x$

زمان بهزاد $\rightarrow x+9$

$$\frac{1}{x}+\frac{1}{x+9}=\frac{1}{20} \rightarrow \frac{x+9+x}{x^2+9x}=\frac{1}{20} \rightarrow 40x+180=x^2+9x$$

$$x^2-31x-180=0$$

$$(x-36)(x+5)=0$$

$\boxed{x=36}$ زمان بهروز به تنهایی

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