نام و نام خانوادگی ...آرمین انزدی...... پاسخنامه تشریحی تکلیف شماره ..۱۸.. کلاس ....A....

$$\frac{L}{W}=\frac{5}{4} \rightarrow S=L\times W=\frac{5}{4}W^2 \Longrightarrow \frac{S'}{S}=\frac{\left(\frac{1+\sqrt5}{2}\right)W^2}{\frac{5}{4}W^2}=\boxed{\frac{2+2\sqrt5}{5}}$$

$$\frac{L'}{W}=\frac{1+\sqrt5}{2} \rightarrow S'=L'\times W=\left(\frac{1+\sqrt5}{2}\right)W^2$$ 1

$D \leftarrow$ قطر

$$\frac{D}{L}=\frac{1+\sqrt5}{2} \Rightarrow \frac{\sqrt{L^2+W^2}}{L}=\frac{1+\sqrt5}{2} \xrightarrow{(\,)^2} \frac{L^2+W^2}{L^2}=\varnothing^2 \quad \varnothing^2 \rightarrow \varnothing+1$$

$$\rightarrow 1+\left(\frac{W}{L}\right)^2=\varnothing+1 \rightarrow \frac{W}{L}=\sqrt{\varnothing} \Rightarrow \frac{L}{W}=\frac{1}{\sqrt{\varnothing}} \rightarrow \left(\frac{L}{W}\right)^2=\frac{1}{\frac{1+\sqrt5}{2}}$$ 2

$$\left(\frac{L}{W}\right)^2=\frac{2}{1+\sqrt5}\times\frac{1-\sqrt5}{1-\sqrt5}=\frac{2-2\sqrt5}{4-5} \rightarrow \left(\frac{L}{W}\right)^2=\frac{\sqrt5-1}{2}$$

$$3a+\sqrt{2a^2+4a}=2 \rightarrow \sqrt{2a^2+4a}=2-3a \xrightarrow{a\leq\frac{2}{3}} 2a^2+4a=(2-3a)^2$$

$$\Rightarrow 4-12a+9a^2-2a^2-4a=0 \rightarrow 7a^2-16a+4=0 \rightarrow \Delta=144$$ 3

$$a_1=\frac{16+12}{14}=2\ \times \quad a_2=\frac{16-12}{14}=\frac{2}{7}\ \checkmark \xrightarrow{a\leq\frac{2}{3}} \frac{a+1}{a}=\frac{\frac{2}{7}+1}{\frac{2}{7}}=\frac{\frac{9}{7}}{\frac{2}{7}}=\boxed{\frac{9}{2}}$$

$$\frac{\sqrt{x+1}}{\sqrt{x-1}+3}-\frac{\sqrt{x+1}}{3-\sqrt{x-1}}=\frac{x-1}{\sqrt{x-1}} \qquad \sqrt{x-1}=a \Rightarrow a^2=x-1 \rightarrow x=a^2+1 \qquad D=[1,+\infty)$$

$$\Rightarrow \frac{3\sqrt{a^2+2}-a\sqrt{a^2+2}-a\sqrt{a^2+2}-3\sqrt{a^2+2}}{9-a^2}=a \leftrightarrow \frac{-2a\sqrt{a^2+2}}{9-a^2}=a \rightarrow 2\sqrt{a^2+2}=a^2-9$$ 4

$$\xrightarrow{(\,)^2} 4a^2+8=a^4+81-18a^2 \xrightarrow{a^2=t} t^2-22t-73=0 \xrightarrow{\Delta=8\sqrt3} \begin{cases} t_1=11+4\sqrt3\ \checkmark\ a^2\geq 9 \\ t_2=11-4\sqrt3\ \times \end{cases} \rightarrow a^2=11+4\sqrt3 \xrightarrow{x=a^2+1} x=12+4\sqrt3$$

1 دقیقه سکوت

$$\frac{1}{\sqrt{2-x}+2}-\frac{1}{2-\sqrt{2-x}}=\frac{2-x}{5\sqrt{2-x}} \qquad \sqrt{2-x}=t \longrightarrow \frac{1}{t+2}-\frac{1}{2-t}=\frac{t}{5}$$

$$\longrightarrow \frac{2-t-t-2}{4-t^2}=\frac{t}{5} \longrightarrow -10=4-t^2 \longrightarrow t^2=14 \rightarrow 2-x=14$$ 5

$$\longrightarrow x=-12$$

امین ایزدی

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$$\frac{1}{x^2}+\frac{1}{(1-x)^2}=\frac{160}{9}\xrightarrow{\times x^2(1-x)^2}(1-x)^2+x^2=\frac{160}{9}x^2(1-x)^2$$

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

$$\to 1-2(x^2-x)=\frac{160}{9}(x^2-x)^2 \xrightarrow{x^2-x=t} 1-2t=\frac{160}{9}t^2 \to 160t^2-18t-9=0$$

$$\xrightarrow{\Delta>0} t=\frac{48}{160},\ t=-\frac{3}{16}\quad \begin{cases}x^2-x=\frac{3}{10}\\ x^2-x=\frac{-3}{16}\end{cases} \to \begin{cases}x^2-x-\frac{3}{10}=0 \longrightarrow S=-\frac{b}{a}=1\\ x^2-x+\frac{3}{16}=0 \longrightarrow S'=-\frac{b'}{a'}=1\end{cases} \Rightarrow \boxed{1+1=2}$$

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

$$\to -x^2+6x-8\geq 0 \to x\in[2,4] \xrightarrow{\text{اشتراک دامنه‌ها با هم}} [2,4]$$

پس $x\geq 0$

$$\sqrt{-x^3+4x^2+25x-100}=-(x+5)(x-4)(x-5) \to (x+5)(x-4)(x-5)\leq 0 \to x\in(-\infty,-5]\cup[4,5]$$

$$\to [2,4]\cap[4,5]=\{4\} \Rightarrow$$ یک جواب دارد

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$$y=|x+2|+|x-1|\ ,\ 3y+x=17 \;\hookrightarrow\; y=-\frac{1}{3}x+\frac{17}{3}$$

$$\begin{cases}2x+1 & ; x\geq 1\\ 3 & ; -2\leq x\leq 1\\ -2x-1 & ; x\leq -2\end{cases}$$

$$-\frac{1}{3}x+\frac{17}{3}=2x+1 \to x=2 \Rightarrow y=5 \to (2,5)$$

$$|AB|=\sqrt{(7-5)^2+(-4-2)^2}=\sqrt{40}$$

$$-\frac{1}{3}x+\frac{17}{3}=-2x-1 \longrightarrow x=-4 \to y=7 \Rightarrow (-4,7)$$

$$\boxed{|AB|=2\sqrt{10}}$$

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

۸ تا ۰ از $\frac{1}{2}x+2$

مساحت ذوزنقه $\frac{2+6}{2}\times 8=32$

$$\begin{cases}x\geq 2 \to x-2=\frac{1}{2}x+2 \to x=8 \to (8,6)\\ x\leq 2 \to 2-x=\frac{1}{2}x+2 \to x=0 \to (0,2)\end{cases}$$

۲ تا ۰ $\to \frac{1}{2}\times 2\times 2=2 \to 2+18=20 \Rightarrow 32-20=\boxed{12} \to S=12$

۸ تا ۲ $\to \frac{1}{2}\times 6\times 6=18$

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$$\frac{1}{x}+\frac{1}{x+9}=\frac{1}{20} \to 20x+180+20x=x^2+9x \to x^2-31x-180=0$$

$$\to \Delta=41 \Rightarrow x_1=\frac{31-41}{2}=-5\ ✗ \qquad x_2=\frac{31+41}{2}=\boxed{36}\ ✓$$ پیروز

فرهاد $\to 36+9=\boxed{45}$