کلاس .... پاسخنامه تشریحی تکلیف شماره ....

نام و نام خانوادگی: دیانا اسدیار

۱

$\frac{x}{y} = \frac{5}{4} \to x = \frac{5}{4}y$

$\frac{x+z}{y} = \frac{1+\sqrt{5}}{2}$

$\frac{5}{4} + \frac{z}{y} = \frac{1+\sqrt{5}}{2} \to \frac{z}{y} = \frac{2+2\sqrt{5}}{4} - \frac{5}{4} \to \frac{z}{y} = \frac{-3+2\sqrt{5}}{4}$

$\frac{(x+z)\cdot y}{y\cdot z} = ? \quad \frac{\left(\frac{5}{4} + \frac{2\sqrt{5}-3}{4}\right)}{\frac{-3+2\sqrt{5}}{4}} \leftarrow \frac{2\sqrt{5}+2}{2\sqrt{5}-3}$

جواب: $\frac{12-2\sqrt{5}}{11}$

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$\frac{\sqrt{x^2+y^2}}{x} = \frac{1+\sqrt{5}}{2} \to \frac{x^2+y^2}{x^2} = \frac{1+5+2\sqrt{5}}{4}$

$\boxed{\frac{2+\sqrt{5}}{2}} = \frac{y^2}{x^2} = ?$

$\to 4x^2 + 4y^2 = 6x^2 + 2x^2\sqrt{5}$

$\cancel{2x^2 + 2y^2 = 3x^2 + x^2\sqrt{5}} \to \cancel{x^2(3+\sqrt{5}) = 2x^2 + 2y^2}$

$\cancel{3+\sqrt{5} = \frac{2}{x^2}} + \frac{2y^2}{x^2}$

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$\cancel{3a} + \sqrt{2a^2+4a} = 2 - 3a$

$2a^2 + 4a = 4 + 9a^2 - 12a$

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

$\frac{a+1}{a} = ? \to \frac{\frac{9}{7}}{\frac{2}{7}} = \frac{9}{2}$ $\quad a^2 - 16a + 28 = (a-2)(a-14) = \frac{2}{7}$, 2 ✓

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$\frac{\sqrt{x+1}}{\sqrt{x-1}+3} - \frac{\sqrt{x+1}}{3-\sqrt{x-1}} = \frac{x-1}{\sqrt{x-1}}$

$\frac{\cancel{3\sqrt{x+1}} - \sqrt{x^2-1} - \sqrt{x^2-1} - \cancel{3\sqrt{x+1}}}{9-x+1} = \frac{-2\sqrt{x^2-1}}{10-x} = \sqrt{x-1}$

$-2\sqrt{x^2-1} = 10 - x$

$(x-1)(x^2 - 24x + 96)$, $\Delta < 0$

$x = 1$

اسم مثبت نداره

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

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

$-10(2-x) = 4 - x^2$

$-20 + 10x = 4 - x^2$

$\to x^2 + 10x - 24 = 0$

$(x-4)(x-6) = 0$

$x = 4$, $x = 6$

$\boxed{\text{۵ اسم مثبت}}$

$x=\frac{3}{4}$ ، $x=\frac{1}{4}$ ← مجموع ریشه ها ← ۲

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

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

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

$$\sqrt{x+\sqrt{-x^3+4x^2+25x-100}}+\sqrt{x^2+\sqrt{-x^2+6x-8}}=x+2 \rightarrow ①$$

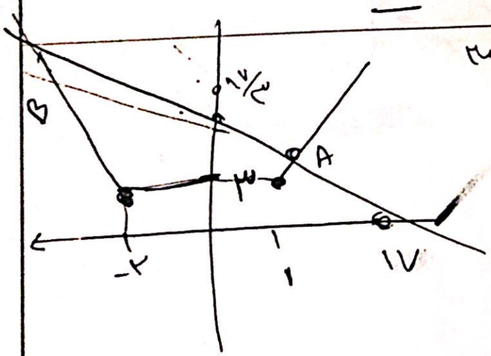
جواب

$x^2(4-x)+25(x-4)$ $\qquad -(x^2-6x+8)$

$-(x-4)(x-2)$

$\underline{(x-4)}(25-x^2)$ $\qquad \rightarrow(-x+4)(x-2)$

$\underline{x=4}$



$3y+x=17$

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

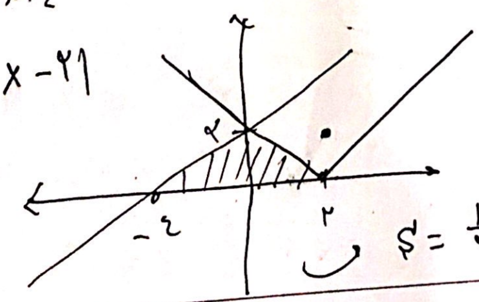
$\rightarrow 2x+1=\frac{17-x}{3}\rightarrow 6x+3=17-x \rightarrow 7x=14 \rightarrow x=2$

$-2x-1=\frac{17-x}{3}\rightarrow -6x-3=17-x \rightarrow -5x=20 \rightarrow x=-4$

$\begin{vmatrix}2\\5\end{vmatrix}$ $\begin{vmatrix}-4\\7\end{vmatrix}$ $\rightarrow\sqrt{4+36}=2\sqrt{10}$ ۸

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

$$\rightarrow\frac{1}{2}x+2=|x-2|$$ ۹



$\rightarrow S=\frac{1}{2}\times 9\times 6=9$

$$\frac{1}{n}+\frac{1}{n+9}=\frac{1}{20}\rightarrow\frac{2n+9}{n(n+9)}=\frac{1}{20}\rightarrow 40n+180=n^2+9n$$ ۱۰

$\rightarrow n^2-31n-180=0$

$\rightarrow (n-36)(n+5)=0$

$\rightarrow n=36$