نام و نام خانوادگی ....هستی هاکی.... پاسخنامه تشریحی تکلیف شماره ..۱۸.. کلاس ..یازدهم ریاضی A........

۱۹,۷۵

۱)

$x \times y \rightarrow \frac{x}{y} = \frac{5}{4} : \frac{x_2}{y} = \frac{1+\sqrt{5}}{2} \quad ; \quad \frac{S_2}{S_1} = ?$

$\frac{S_2}{S_1} = \frac{x_2 y}{x_1 y} = \frac{y(\frac{1+\sqrt{5}}{2})}{y(\frac{5}{4})} = \frac{2+2\sqrt{5}}{5}$

(۲)

۲)

$z/x\ ;\ y : \frac{z}{x} = \frac{1+\sqrt{5}}{2} \Rightarrow (\frac{x}{y})^2 = ?$

$\hookrightarrow z = \frac{1+\sqrt{5}}{2} x \quad : x^2 + y^2 = z^2 = (\frac{1+\sqrt{5}}{2})^2 x^2 \Rightarrow y^2 = x^2((\frac{1+\sqrt{5}}{2})^2 - 1)$

$\Rightarrow \frac{x^2}{y^2} = \frac{x^2}{x^2(\frac{1+\sqrt{5}}{2})} = \frac{2}{1+\sqrt{5}} \xrightarrow{\text{گویا}} \frac{2\sqrt{5}-2}{4} = \frac{\sqrt{5}-1}{2}$

$\frac{6+2\sqrt{5}}{4} = \frac{3+\sqrt{5}}{2} - 1 = \frac{1+\sqrt{5}}{2}$

(۲)

۳)

$3a + \sqrt{2a^2+4a} = 2 \rightarrow \frac{a+1}{a} = ?$

$\Rightarrow \sqrt{2a^2+4a} = 2-3a \quad ; \geq 0 \Rightarrow 2-3a \geq 0 \Rightarrow a < \frac{2}{3}$

$(\ )^2 : 2a^2+4a = 4-12a+9a^2 \rightarrow 7a^2 - 16a + 4 = 0 \rightarrow a^2 - 16a + 28 = 0$

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

$\hookrightarrow a = 2, 14 \xrightarrow{\div 7} a = \frac{2}{7}, 2$

$\frac{2}{7}$ ✓ ، 2 غ ق ق

$\Rightarrow \frac{a+1}{a} = \frac{7(\frac{9}{7})}{2} = 4,5$

(۲)

۴)

$\frac{\sqrt{x+1}}{\sqrt{x-1}+3} - \frac{\sqrt{x+1}}{3-\sqrt{x-1}} = \frac{x-1}{\sqrt{x-1}}$ ؛ تعداد $x>0$ ؟

$\hookrightarrow x \neq 1,\ x \geq -1$

$\sqrt{x+1}\left(\frac{3-\sqrt{x-1}-3-\sqrt{x-1}}{10-x}\right) = \frac{-2\sqrt{x-1}}{10-x} = \frac{x-1}{\sqrt{x-1}} \rightarrow -2(x-1) = -x^2 + 9x - 10$

$\Rightarrow -2x + 2 = -x^2 + 9x - 10 : x^2 - 11x + 12 = 0$

$\rightarrow \Delta = b^2 - 4ac : 121 - 48 = 73 > 0 \rightarrow$

$\frac{11 \pm \sqrt{73}}{2}$ ↗ $\frac{11+\sqrt{73}}{2}$ ✓ >0 ↘ $\frac{11-\sqrt{73}}{2}$ ✓ >0

$\Rightarrow$ ۲ ریشه مثبت

$\sqrt{x+1}\left(\frac{-2\sqrt{x-1}}{9-x+1}\right) = \frac{(\sqrt{x-1})^2}{\sqrt{x-1}}$

$\hookrightarrow 2\sqrt{x+1} = x - 10$

$\rightarrow x^2 - 24x + 96 = 0$

$\rightarrow x = 12 \pm 4\sqrt{3}$

$\times\ 12 - 4\sqrt{3}$ کمتر از ۱۰

و معادله یک ریشه ① دارد

(۱,۷۵)

۵)

$\frac{1}{\sqrt{2-x}+2} - \frac{1}{2-\sqrt{2-x}} = \frac{2-x}{5\sqrt{2-x}}$ ؛ تعداد ریشه مثبت ؟

$x \leq 2$

$\Rightarrow \frac{1}{t+2} - \frac{1}{2-t} = \frac{t^2}{5t} : \frac{2-t-t-2}{t^2-4} = \frac{-2t}{t^2-4} = \frac{t^2}{5t}$

$\Rightarrow -10 = t^2 - 4 \rightarrow t^2 = -6 \Rightarrow$ غ ق ق $\Rightarrow$ به ازای هیچ مقدار مثبتی از x معادله جواب ندارد!

(۲)

۶

$\frac{1}{x^2}+\frac{1}{(1-x)^2}=\frac{170}{9}$: $\frac{(1-x)^2+x^2}{x^2(1-x)^2}=\frac{2x^2-2x+1}{(x-x^2)^2}=\frac{170}{9}$: $\frac{2(x^2-x)+1}{(x^2-x)^2}=\frac{170}{9}$ $\to t=x^2-x$

$\Rightarrow 18t+9=170t^2$: $170t^2-18t-9=0$ (9×170) : $(t-48)(t+30)=0 \to t=-30,\ 48 \xrightarrow{\div170} \frac{3}{10},\ \frac{-3}{17}$

$\Rightarrow \begin{cases} t=0.3: & x^2-x=0.3 \xrightarrow{\Delta>0} x^2-x-0.3=0 \to S=\frac{-b}{a}=1 \\ t=\frac{-3}{17}: & x^2-x+\frac{3}{17}=0 \to \Delta>0 : S=1 \end{cases} \Rightarrow 1+1=2$

۷

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

$x^2(4-x)-25(4-x)\geq0$
$\Rightarrow (4-x)(x^2-25)\geq0$
ریشه: 4 ، ±5

-5		4		5	
$+$	$-$		$+$		$-$

$\Rightarrow -x^2+6x-8\geq0$
$\to x^2-6x+8\leq0$
$(x-4)(x-2)$

2		4	
$+$	$-$		$+$

$\overset{\cap}{\Rightarrow} \{4\} \Rightarrow x=4$

$\Rightarrow \sqrt{4+2}+\sqrt{16+4}=6$ ✓ $\Rightarrow$ جواب

۸

1) $y=|x+2|+|x-1|$
2) $3y+x=17$
$\Rightarrow AB=?$ $\to y_1 \Rightarrow$

	-2		1	
$-2x-1$		3		$2x+1$

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

$\begin{cases} x\geq1 \Rightarrow 3(2x+1)=17-x : 6x+3=17-x : 7x=14 \to x=2 ✓ \\ -2<x<1 \Rightarrow 9=17-x \to x=8 \text{ غ ق ق} \\ x\leq-2 \Rightarrow 3(-2x-1)=17-x : -6x-3=17-x : 5x=-20 \to x=-4 ✓ \end{cases}$

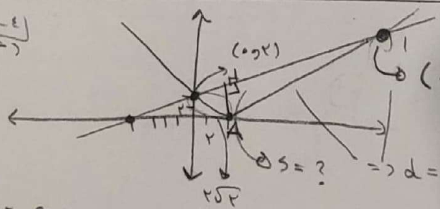
: A و B: $(2,5)$, $(-4,7)$

$\Rightarrow d=\sqrt{36+4}=\sqrt{40}=2\sqrt{10}$

۹

$y_1=\sqrt{x^2-4x+4}$, $y_2=\frac{1}{2}x+2 \to y=0 \to x=-4$
$(x-2)^2 \Rightarrow y=|x-2|$:

$2-x$	2	$x-2$



$\Rightarrow d=\sqrt{64+16}=\sqrt{80}=4\sqrt{5}$

$\Rightarrow x\geq2$: $x-2=\frac{1}{2}x+2$: $\frac{1}{2}x=4 \to x=8$, $y=6$

$\Rightarrow S=\frac{4\sqrt{5}\times6\sqrt{5}}{2\times5}=12$

$A(2,0)$, $y-\frac{1}{2}x-2=0$
$AH \Rightarrow \frac{|1-1-2|}{\sqrt{1+\frac{1}{4}}}=\frac{3}{\frac{\sqrt5}{2}}=\frac{6\sqrt5}{5}$

۱۰

B F $t=?$
t $t+9$: $\frac{1}{t}+\frac{1}{t+9}=\frac{1}{20}$: $20(2t+9)=t^2+9t$: $t^2+t(9-40)-180=0$ ($-31t$)

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

$\to t=-5$ (غ ق ق) , 36

=> [illegible] در ۳۶ ساعت!