یازدهم تجربی (

Date No

[illegible] ۲-

۱- $2x^2+y^2-4x+6y+k=0 \Rightarrow 2x^2+y^2-4x+6y-11+11+k=0 \Rightarrow 2(x^2-2x+1)+(y^2+6y+9)-11+k=0$

$\Rightarrow 2(x-1)^2+(y+3)^2-13+k=0 \Rightarrow \boxed{k=13}$

۲- $f(x)=\begin{cases} x^2+4x & ; x\geq a \\ 3x+a+2 & ; x<a \end{cases}$ $\quad x=a \Rightarrow a^2+4a=2a+a+2 \Rightarrow a^2+a-2=0 \Rightarrow (a+2)(a-1)=0$

$a=-2 \vee a=1 \xRightarrow{a>0} a=1 \Rightarrow \boxed{f(1)=5}$

۳- $f(x)=\begin{cases} 2x^2-b & ; |x+1|\geq 2 \\ a+2x & ; -3\leq x\leq -1 \end{cases}$ $\quad |x+1|\geq 2 \begin{cases} x+1\geq 2 \Rightarrow x\geq 1 \\ x+1\leq -2 \Rightarrow x\leq -3 \end{cases}$ $\quad x=-3,\ 18-b=a-6 \Rightarrow \boxed{a+b=24}$

۴- $y=\sqrt{6x-a}+\sqrt{b-3x}$ $\quad D_f=\{2\} \Rightarrow \sqrt{12-a}+\sqrt{b-6} \geq 0 \Rightarrow a=12,\ b=6$

باید فقط مساوی صفر باشد

$\boxed{\frac{b}{a}=\frac{1}{2}}$

۵- الف) $y=\sqrt{\frac{x+1}{|x-3|}}+\sqrt{\frac{6-x}{x^2+2x+4}}$ $\quad \frac{x+1}{|x-3|}\geq 0 \quad x\neq 3 \Rightarrow x+1\geq 0 \Rightarrow x\geq -1$

$\frac{6-x}{x^2+2x+4}\geq 0 \Leftarrow x^2+2x+4 \xrightarrow[a>0]{\Delta<0}$ همواره +

$6-x\geq 0 \Rightarrow x\leq 6$ $\quad \xrightarrow{\cap} \boxed{D_f=[-1,6]-\{3\}}$

ب) $y=\sqrt{[x]-4}+\sqrt{2-[x]}$

$\Rightarrow [x]-4\geq 0 \Rightarrow [x]\geq 4 \Rightarrow x\geq 4$

$2-[x]\geq 0 \Rightarrow [x]\leq 2 \Rightarrow x<3$ $\quad \xrightarrow{\cap} \varnothing \Rightarrow \boxed{D_f=\varnothing}$

۶- الف) $y=\sqrt{\frac{x^2-x-6}{x^4-13x^2+36}}$

$\Rightarrow \frac{x^2-x-6}{x^4-13x^2+36}\geq 0 \Rightarrow \frac{(x-3)(x+2)}{(x^2-4)(x^2-9)}=\frac{(x-3)(x+2)}{(x-3)(x+3)(x-2)(x+2)}$

$x^4-13x^2+36\neq 0$

	-3		-2^*		2		3^*	
+		−		−		+		+

$\boxed{D_f=(-\infty,-3)\cup(2,3)\cup(3,+\infty)}$

ب) $y=\sqrt{\frac{x^3-2x^2-5x+6}{x^3+2x^2-5x-6}}$

برای $x-1$ تقسیم $\Rightarrow =(x-1)(x^2-x-6)=(x-1)(x+2)(x-3)$

برای $x+1$ تقسیم $\Rightarrow =(x+1)(x^2+x-6)=(x+1)(x-2)(x+3)$

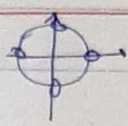
	-3		-2		-1		1		2		3	
+		−		+		−		+		−		+

$\Rightarrow \boxed{D_f=(-\infty,-3)\cup[-2,-1)\cup[1,2)\cup[3,+\infty)}$

۷- الف) $y=\sqrt{[-x]-2} \Rightarrow [-x]\geq 2 \rightarrow -[x$

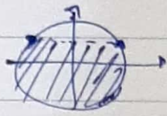
ب) $y=\dfrac{5x^2+4}{[x]^2-2[x]-3} \Rightarrow [x]^2-2[x]-3\neq 0 \Rightarrow ([x]-3)([x]+1)\neq 0 \Rightarrow$

$$\left.\begin{array}{l}[x]\neq 3 \Rightarrow x\neq[3,4) \\ [x]\neq -1 \Rightarrow x\neq(-2,-1]\end{array}\right\} \Rightarrow D_f=\mathbb{R}-(-2,-1]\cup[3,4)$$



۸- الف) $y=\dfrac{\cot x+1}{\tan x+1} \Rightarrow \sin x\neq 0,\ \cos x\neq 0 \Rightarrow x\neq \dfrac{k\pi}{2}$

$\dfrac{\sin x}{\cos x}\neq -1 \rightarrow$



ب) $y=\sqrt{1-4\sin^2 x} \Rightarrow 4\sin^2 x\leq 1$

$\Rightarrow \sin^2 x\leq \frac{1}{4} \Rightarrow \sin x\leq \frac{1}{2} \Rightarrow x=\{\ \ [\frac{\ \pi}{6},$

۹- الف) $y=\sqrt{1-\log_{\frac{1}{2}}^{x-1}}$ $\quad \log_{\frac{1}{2}}^{x-1}\geq 1 \Rightarrow x-1\geq 1^{\frac{1}{2}}=1 \Rightarrow x\geq 2$

$\Rightarrow x-1>0 \Rightarrow x>1$ $\quad \xrightarrow{\cap} D_f=[2,+\infty)$

ب) $y=\dfrac{\sqrt{x^2-x}}{1-\log_4^{x^2+x}}$

۱۰- الف) $y=\sqrt{4^{4x-x^2}-8}$ $\quad 2^{4x-x^2}\geq 2^3 \Rightarrow 4x-x^2\geq 3 \Rightarrow x^2-4x+3\leq 0 \Rightarrow (x-3)(x-1)\leq 0$

$D_f=(-\infty,1]\cup[3,+\infty) \Longleftarrow$

	1		3	
+	0	−	0	+

ب) $y=\left(\dfrac{3x+5}{2x+4}\right)! \Rightarrow \dfrac{3x+5}{2x+4}\in W \Rightarrow x=\dfrac{3W+5}{2W+4}$

$\xrightarrow{\cup} D_f=\{x\mid x\in k \mid k=\dfrac{3W+5}{2W+4}\}$