نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۲ کلاس .....

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$x^2+y^2-4x+6y+k=0$

$(y^2+6y+9)-9+2x^2-4x+2-1=0$

$(y+3)^2-9+2(x-1)^2-2+k=0$

$\Rightarrow -9-2+k=0 \Rightarrow k=17$

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$a^2+4a=2a+a+2$

$a^2+a-2=0$

$(a+2)(a-1)$

$\Rightarrow a=-2$

$a=1$

$f(x)=\begin{cases} x^2+4x & x\geq 1 \\ 2x+2 & x<1 \end{cases} \Rightarrow f(1)=5$

$f(x)\begin{cases} x^2+4 & x\geq -1 \rightarrow f(1)=5 \\ 2x+2 & x\leq -2 \end{cases}$

$\Rightarrow f(1)=5$

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$|x+1|\geq 2 \Rightarrow x+1\geq 2 \rightarrow x\geq 1$

$x+1\leq -2 \rightarrow x\leq -3$

$f(x)\begin{cases} 2x^2-b & x\geq 1 \\ & x\leq -3 \\ a+2x & -2\leq x\leq 2 \end{cases}$

$f(-2) \rightarrow 2(-2)^2-b=a+2(-2)$

$8-b=a-4$

$\Rightarrow 12-b=a-4$

$-a-b=-16 \Rightarrow a+b=16$

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$4x-a\geq 0$

$12\geq a$

$b-2x\geq 0$

$b\geq 4$

$\Rightarrow \frac{b}{a}=\frac{4}{12}=\frac{1}{3}$

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الف) $x+1\geq 0 \rightarrow x\geq -1$

$|x-2|\geq 0$ $x-2>0 \Rightarrow x>2$

$x-2<0 \Rightarrow x<2 \Rightarrow x=R-\{2\}\cap[-1,+\infty) \Rightarrow [-1,+\infty)-\{2\}$

$\sqrt{\frac{4-x}{x^2+2x+8}} \rightarrow$

	-4		4	
	$+$	0	$-$	

$\rightarrow$ همه اعداد به جز -4 و 4

ب) $[x]-4\geq 0$

$[x]\geq 4 \Rightarrow x\geq 4 \rightarrow [4,+\infty)$

$4-[x]\geq 0$

$-[x]\geq -4$

$[x]\leq 4 \Rightarrow x<5 \rightarrow (-\infty,5)$

$\Rightarrow \emptyset$

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الف) $\sqrt{\frac{x^2-x-6}{x^4-12x^2+27}}$ $\rightarrow t^2-12t+27 \rightarrow (t-9)(t-4) \rightarrow t=9 \quad x^2=9 \rightarrow x=\pm 3$

$t=3^2 \rightarrow x^2=4 \rightarrow x=\pm 2$

$-3 \quad -2 \quad 2 \quad 3$ (*, *)

$+ \mid - \mid - \mid + \mid +$ $\Rightarrow Df=(-\infty,-3)\cup(2,3)\cup(3,+\infty)$

ب) $\frac{x^3-2x^2-5x+6}{x^3+2x^2+5x-6} \geq 0$

$\frac{(x-1)(x+2)(x-3)}{(x+1)(x-2)(x+3)}$

$-3 \quad -2 \quad -1 \quad 1 \quad 2 \quad 3$

$+ \mid - \mid + \mid - \mid + \mid - \mid +$

$\Rightarrow (-\infty,-3)\cup[-2,-1)\cup[1,2)\cup[3,+\infty)$

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الف) $[-x]-2 \geq 0 \quad [-x] \geq 2 \rightarrow -x < -1 \rightarrow (1,-\infty)$

ب) $[x]^2-2[x]-3 \neq 0$

$Df=(-1,0) \rightarrow 0$ غلط

$\Rightarrow Df=R-(-1,0)$

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الف) $\cot=\frac{\cos}{\sin} \rightarrow \sin \neq 0 \rightarrow R-\{k\pi\}$

$\tan=\frac{\sin}{\cos} \rightarrow \cos \neq 0 \rightarrow R=\{k\pi+\frac{\pi}{2}\}$

$\tan x-1 \neq 0 \Rightarrow \tan x \neq 1$

$\hookrightarrow R-\{k\pi+\frac{\pi}{4}\}$

ب) $1-4\sin^2 x \geq 0 \rightarrow -4\sin^2 x \geq -1 \quad 4\sin^2 x \leq 1 \rightarrow \sin^2 x \leq \frac{1}{4} \rightarrow -\frac{1}{2} \leq \sin x \leq \frac{1}{2}$

$Df=[-\frac{1}{6},\frac{1}{6}] \Rightarrow Df=\{k\pi \pm \frac{\pi}{6}\}$

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الف) $1-\log_{\frac{1}{4}}^{x-1} \geq 0$ $\quad x-1>0 \rightarrow x>1 \rightarrow (1,+\infty) \rightarrow 1$

$\hookrightarrow \log_{\frac{1}{4}}^{x-1} \leq 1 \Rightarrow x-1 \geq \frac{1}{4} \rightarrow x \geq \frac{5}{4} \rightarrow [\frac{5}{4},+\infty) \rightarrow 2$

$1 \cap 2 \rightarrow [1,\frac{5}{4}]$

ب) $x^2-x \geq 0 \rightarrow x(x-1)$

$0 \quad 1$

$+ \mid - \mid +$ $\rightarrow (-\infty,0]\cup[1,+\infty)$

$1-\log_4^{x^2-3x} > 0 \rightarrow \log_4^{x^2-3x} < 1$

$x^2-3 \leq 4 \rightarrow x^2 \leq 7 \Rightarrow |x| \leq \sqrt{7} \Rightarrow -\sqrt{7} \leq x \leq \sqrt{7}$

$\Rightarrow Df=[-\sqrt{7},0]\cup[1,+\sqrt{7}]$

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الف) $3^{4x-x^2}-8 \geq 0 \rightarrow 3^{4x-x^2} \geq 8 \Rightarrow 4x-x^2 \geq 2$

$-x^2+4x-2 \leq 0 \rightarrow x^2-4x+2 \geq 0$

$\hookrightarrow x=\frac{4\pm\sqrt{8}}{2}=2\pm\sqrt{2}$

$1 \quad 2$

$+ \mid - \mid +$ $\Rightarrow Df=[1,2]$

ب) $=\frac{3x+5}{2x+4} \in w \rightarrow 3x+5 \in 2aw+4w \rightarrow 3x-2xw \in 4w-5$

$\Rightarrow x(3-2w)=4w-5$

$\Rightarrow x=\frac{4w-5}{3-2w}$

$\Rightarrow Df=\{a \mid x=\frac{4k-5}{3-2k}, k \in w\}$