نام و نام خانوادگی: ماریا امین الرعایا

کلاس: دهم رشته B

سری: ۶

page: ( )

Subject:

Year: Month: Day:

۱- الف) $y=\frac{x+2}{4x^3-20x^2+21x-10}$

$(x-1)(2x-3)(2x-5)\neq 0$

$x-1\neq 0 \quad x\neq 1$

$2x-3\neq 0 \quad 2x\neq 3 \quad x\neq \frac{3}{2}$

$2x-5\neq 0 \quad 2x\neq 5 \quad x\neq \frac{5}{2}$

$4x^3-20x^2+21x-10 \;\big|\; x-1$

$\pm 4x^3 \mp 4x^2$

$-16x^2+21x-10$

$\pm 16x^2 \mp 16x$

$5x-10$

$\pm 5x \mp 5$

0

$4x^2-16x+10$

$Df=\mathbb{R}-\{1,\frac{3}{2},\frac{5}{2}\}$

ب) $y=\frac{x+3}{2x^3-7x^2-8x+6}$

$(x+1)(2x^2-9x+6)\neq 0$

$x+1\neq 0 \quad x\neq -1$

$2x^2-9x+6=0 \rightarrow x^2-9x+12=0$

$(x-3)(x-4)$

$x=3,4$

$2x^3-7x^2-8x+6 \;\big|\; x+1$

$\pm 2x^3 \pm 2x^2$

$-9x^2-8x+6$

$\pm 9x^2 \pm 9x$

$-x+6$

$\pm x \pm 1$

5

$2x^2-9x+6$

$Df=\mathbb{R}-\{-1,\frac{3}{2},4\}$

۲- الف) $y=\frac{x+1}{x-\sqrt{2-2x}}$

$2-2x\geq 0 \quad 2x\leq 2 \quad x\leq 1$

$x-\sqrt{2-2x}\neq 0 \quad x\neq \sqrt{2-2x}$

$x^2\neq 2-2x \rightarrow x^2+2x-2\neq 0 \quad (x+1-\sqrt{3})(x+1+\sqrt{3})\neq 0$

$Df=(-\infty,1]-\{-1-\sqrt{3},-1+\sqrt{3}\}$

ب) $y=\frac{x+2}{x-\sqrt{3x-2}}$

$3x-2\geq 0 \quad 3x\geq 2 \quad x\geq \frac{2}{3}$

$x-\sqrt{3x-2}\neq 0 \quad x^2-3x+2\neq 0 \quad (x-1)(x-2)\neq 0$

$Df=[\frac{2}{3},+\infty)-\{1,2\}$

۳- الف) $y=\frac{\sin x}{2\cos x-1}$

$2\cos x-1\neq 0 \quad 2\cos x\neq 1 \quad \cos x\neq \frac{1}{2}$

$Df=\mathbb{R}-\{2k\pi+\frac{\pi}{3},2k\pi+\frac{5\pi}{3}\}$

ب) $y=\frac{\cos x+1}{2\sin x+1}$

$2\sin x+1\neq 0 \quad 2\sin x\neq -1 \quad \sin x\neq -\frac{1}{2}$

$Df=\mathbb{R}-\{2k\pi+\frac{11\pi}{6},2k\pi+\frac{7\pi}{6}\}$

ج) $y=\frac{\tan x+2}{\cot x-1}$

$\cot x-1\neq 0 \quad \frac{\cos x}{\sin x}\neq 1$

$\cot x \rightarrow \sin x\neq 0 \quad \tan x \rightarrow \cos x\neq 0$

$Df=\mathbb{R}-\{k\pi+\frac{\pi}{4},k\pi,k\pi+\frac{\pi}{2}\}$

د) $y=\frac{\sin x+1}{4\sin^2 x-3}$

$4\sin^2 x-3\neq 0 \quad 4\sin^2 x\neq 3 \quad \sin^2 x\neq \frac{3}{4} \quad \sin x\neq \pm\frac{\sqrt{3}}{2}$

$Df=\mathbb{R}-\{k\pi+\frac{\pi}{3},k\pi+\frac{2\pi}{3}\}$

۴- الف) $x^2-5x+6>0$ $\quad (x-2)(x-3)$ $\quad$ $+ \; 2 \; - \; 3 \; +$ $\quad x\in(-\infty,2)\cup(3,+\infty)$

ب) $x^2-6x+5<0$ $\quad (x-1)(x-5)$ $\quad$ $+ \; 1 \; - \; 5 \; +$ $\quad x\in(1,5)$

ج) $x^2+6x+5\geq 0$ $\quad (x+5)(x+1)$ $\quad$ $+ \; -5 \; - \; -1 \; +$ $\quad x\in(-\infty,-5]\cup[-1,+\infty)$

د) $x^2-7x+6\leq 0$ $\quad (x-1)(x-6)$ $\quad$ $+ \; 1 \; - \; 6 \; +$ $\quad x\in[1,6]$

۵- الف) $\dfrac{x^2-3x+2}{x-5}<0$ $\quad \dfrac{(x-2)(x-1)}{(x-5)}$ $\quad$ $- \; 1 \; + \; 2 \; - \; 5 \; +$ $\quad x\in(-\infty,1)\cup(2,5)$

ب) $\dfrac{x^2-1}{x^2-6x+5}\geq 0$ $\quad \dfrac{(x-1)(x+1)}{(x-1)(x-5)}$ $\quad$ $+ \; -1 \; - \; 1 \; - \; 5 \; +$ $\quad x\in(-\infty,-1]\cup(5,+\infty)$

۶- الف) $y=\sqrt{\dfrac{x^2-4x+3}{x^3-1}}$ $\quad \dfrac{(x-3)(x-1)}{(x-1)(x^2+x+1)}\geq 0$ $\quad$ $- \; 1 \; - \; 3 \; +$ $\quad D_f=[3,+\infty)$

$(x-1)(x^2+x+1)\neq 0$

ب) $y=\sqrt[3]{\dfrac{x^2-4x+3}{x^2-1}}$ $\quad (x-1)(x+1)\neq 0$ $\quad D_f=\mathbb{R}-\{\pm 1\}$

۷- الف) $y=\log(x^2-3x)$ $\quad x^2-3x>0$ $\quad x(x-3)>0$ $\quad$ $+ \; 0 \; - \; 3 \; +$ $\quad D_f=(-\infty,0)\cup(3,+\infty)$

ب) $y=\log_{|x|-2}^{16-x^2}$ $\quad 16-x^2>0 \rightarrow 16>x^2 \rightarrow -4<x<4$ $\quad D_f=(-4,-2)\cup(2,4)-\{\pm 3\}$

$|x|-2>0 \rightarrow |x|>2$ $\quad |x|-2\neq 1 \rightarrow |x|\neq 3$

$x>+2 \quad x<-2 \qquad x\neq \pm 3$

ج) $y=\log_{10-x}\dfrac{x^2-7x+12}{x-3}$ $\quad \dfrac{(x-4)(x-3)}{x-3}>0$ $\quad$ $- \; 3 \; - \; 4 \; +$ $\quad D_f=(4,10)-\{9\}$

$10-x>0 \rightarrow x<10 \quad 10-x\neq 1 \quad x\neq 9$

د) $y=\sqrt{x^2-11x+28}+\log_x\sqrt{36-x^2}$ $\quad \sqrt{36-x^2}>0$ $\quad 36>x^2 \rightarrow -6<x<6$

$(x-4)(x-7)\geq 0$ $\quad x>0$ $\quad x\neq 1$ $\quad D_f=(-6,4]-\{1\}$

$+ \; 4 \; - \; 7 \; +$ $\longrightarrow (-\infty,4]\cup[7,+\infty)$

۸- $y=\dfrac{x^2-x}{x^2+x} \rightarrow \dfrac{x(x-1)}{x(x+1)}\neq 0$ $\quad$ $+ \; -1 \; - \; 0 \; - \; 1 \; +$

	-1		0		1	
$x(x-1)$	+	+	0	-	0	+
$x(x+1)$	+ ∅	-	∅	+		+
y	+ ∅	-	∅	-	0	+

مارینا امین الرعایا

Subject:
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page: ( )

۹.

$y=\sqrt{\frac{x-f(x)}{f(x)}}$ $\quad f(x)\neq 0 \longrightarrow x\neq \pm 2$

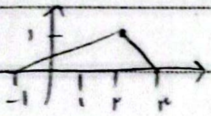
$\frac{x-f(x)}{f(x)} \geq 0$

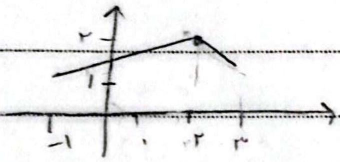
-۲	-۱	۲	۳

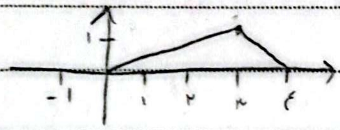
$+ \quad - \quad + \quad - \quad +$

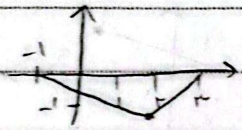
$D_f=(-\infty,-2)\cup[-1,2)\cup[3,+\infty)$

۱۰.

$f(x)=$ 

الف) $f(x)+1$ 

ب) $f(x-1)$ 

ج) $-f(x)$ 

د) $f(x+1)+2$