Subject :
Date

تکالیف فصلی یازدهم C

۱ـ الف) $y = \dfrac{x+3}{2x^3 + 3x^2 - 8x + 3}$

$$\begin{array}{l|l} 2x^3 + 3x^2 - 8x + 3 & x-1 \\ \hline -\cancel{2x^3} + 2x^2 & 2x^2 + 5x - 3 \\ \hline 5x^2 - 8x + 3 & \\ -5x^2 + 5x & \\ \hline -3x + 3 & \\ 3x - 3 & \\ \hline 0 & \end{array}$$

$y = \dfrac{x+3}{(x-1)(2x^2+5x-3)}$

$x = 1$

$x = -3$

$x = \frac{1}{2}$

$2x^2 + 5x - 3 = 0 \rightarrow x^2 + 5x - 6 = 0 \rightarrow (x-1)(x+6) = 0$

$x = \frac{1}{2}, \; x = -3$

$D_f = R - \{-3, \frac{1}{2}, 1\}$

ب) $y = \dfrac{x+3}{2x^3 + 9x^2 + 10x + 3}$

$$\begin{array}{l|l} 2x^3 + 9x^2 + 10x + 3 & x+1 \\ \hline -2x^3 - 2x^2 & 2x^2 + 7x + 3 \\ \hline +7x^2 + 10x + 3 & \\ -7x^2 - 7x & \\ \hline +3x + 3 & \\ -3x - 3 & \\ \hline 0 & \end{array}$$

$y = \dfrac{x+3}{(x+1)(2x^2+7x+3)}$

$x = -1$

$x = -\frac{1}{2}$

$x = 3$

$2x^2 + 7x + 3 = 0 \rightarrow x^2 + 7x + 6 = 0$

$(x+1)(x+6) = 0 \; \begin{cases} -\frac{1}{2} \\ 3 \end{cases}$

$D_f = R - \{-1, -\frac{1}{2}, -3\}$

Subject:
Date

۲- $|2x+1| - |x+3| \neq 0$ $\qquad$ الف) $y = \dfrac{x+3}{|2x+1| - |x+3|}$

$\Rightarrow |2x+1| \neq |x+3| \xrightarrow{\text{توان ۲}} 4x^2+4x+1 \neq x^2+6x+9 \Rightarrow 3x^2-2x-8 \neq 0$

$\xrightarrow{\text{ریشه}} x^2-2x-24 \neq 0 \rightarrow (x-6)(x+4) \neq 0 \rightarrow x \neq 2$

$\rightarrow x \neq -\frac{4}{3}$

$D_f = R - \{2, -\frac{4}{3}\}$

ب) $y = \sqrt{|2x+1| - |x+3|}$ $\qquad$ $|2x+1| - |x+3| \geq 0 \rightarrow |2x+1| \geq |x+3|$

$\xrightarrow{\text{توان ۲}} 4x^2+4x+1 \geq x^2+6x+9 \Rightarrow 3x^2-2x-8 \geq 0 \xrightarrow{\text{ریشه}} x^2-2x-24 = 0$

$\rightarrow (x-6)(x+4) = 0 \quad x=2, \quad x=-\frac{4}{3}$

$-\frac{4}{3}$		2	
$+$	0	$-$	0 $+$

$D_f = (-\infty, -\frac{4}{3}] \cup [2, +\infty)$

۳- الف) $y = \log_2(1-\log_3 x)$ $\qquad$ $1-\log_3 x > 0 \rightarrow \log_3 x < 1 \rightarrow x < 3$

$\log_3 x \rightarrow x > 0$

$D_f = (0, 3)$

ب) $\log_2(1-\log_{\frac{1}{2}} x)$ $\qquad$ $1-\log_{\frac{1}{2}} x > 0 \rightarrow \log_{\frac{1}{2}} x > 0 \rightarrow \log_{\frac{1}{2}} x < 1 \rightarrow x > \frac{1}{2}$

$\log_{\frac{1}{2}} x \rightarrow x > 0 \qquad D_f = (\frac{1}{2}, +\infty)$

۴- $f(x) = \sqrt{\log_{0.5} \log_5 (2x-1)}$ $\qquad$ $\log_5(2x-1) > 0 \rightarrow 2x-1 > 1 \rightarrow 2x > 2$

$\rightarrow x > 1$

$2x-1 > 0 \rightarrow 2x > 1 \rightarrow x > \frac{1}{2}$

$\log_{0.5} \log_5 (2x-1) \geq 0 \rightarrow \log_5(2x-1) \leq 1 \rightarrow 2x-1 \leq 5 \rightarrow 2x \leq 6$

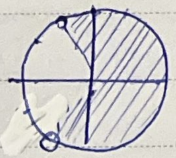
$\rightarrow x \leq 3 \qquad D_f = (1, 3]$

Subject:
Date

۷_

الف) $y=\log(۲\cos x+۱)$ $\quad ۲\cos+۱>۰ \to ۲\cos x>-۱$

$\to \cos x>-\frac{۱}{۲}$



ب) $y=\sqrt{\log\frac{x-۱}{x+۱}}$ $\quad \frac{x-۱}{x+۱}>۰ \to x=۱ ,\ x=-۱$ $\quad$ $-۱ \quad ۱$; $+ \quad - \quad +$

$D_۱=(-\infty,-۱]\cup[۱,+\infty)$

$\log\frac{x-۱}{x+۱}\geq۰ \to \frac{x-۱}{x+۱}\geq۱ \to \frac{x-۱}{x+۱}-۱\geq۰ \to \frac{x-۱-x-۱}{x+۱}\geq۰$

$\to \frac{\cancel{x}-۲}{x+۱}\geq۰$ $\quad -۱$; $+ \quad -$ $\quad \to D_۲=(-\infty,-۱)$ $\quad D_f=(-\infty,-۱)$

۸_

$f(x)=\sqrt{(a+۲)x^۲+ax+b}$ $\quad a+۲=۰\to a=-۲$

$D_f=(-\infty,۳]$ $\quad ax+b \xrightarrow{a=-۲} -۲x+b \xrightarrow[\text{عبارت صفر}]{\text{به ازای } x=۳} -۲\times۳+b=۰$

$b=۶$

۹_

$f(x)=\sqrt{x^۲+۲x+۲-m^۲}$ $\quad \Delta=b^۲-۴ac \to ۴-۸+۴m^۲=۰$

$\to ۴m^۲-۴=۰ \to ۴(m^۲-۱)=۰$

$D_f=\mathbb{R}$ عبارت همیشه مثبت $\quad$ عبارت min $\quad$ $\Delta=۰$ $\quad a>۰$ $\quad \to (m-۱)(m+۱)=۰ \to m=\pm۱$

$m_{max}-m_{min}=۱-(-۱)=۲$

۱۰_

$f(x)=\frac{\sqrt{۴-x^۲}}{[x]+[x]+۱}$ $\quad ۴-x^۲\geq۰ \to (۲-x)(۲+x)\geq۰$

$-۲ \quad ۲$; $- \quad + \quad -$ $\quad \to D_f=[-۲,۲]$

$[x]+[-x]+۱\neq۰ \to [x]+[-x]\neq۱ \to D_f=\mathbb{Z}$

$D_f=\{-۲,-۱,۰,۱,۲\}$

PAPCO