نام و نام خانوادگی: لیما رجبی — پاسخنامه تشریحی تکلیف شماره: ۳ — کلاس: یازدهم ریاضی A

1

الف) $\dfrac{x+3}{2x^3+3x^2-8x+3}$ مجموع ضرایب = صفر

$2x^3+3x^2-8x+3 \;\big|\; x-1 \quad 2x^2+5x-3 \Rightarrow \dfrac{x+3}{(x-1)(x+3)(2x-1)} \Rightarrow \cancel{D_f}$

$\times 2\,(x^2+5x-6) \Rightarrow (x+6)(x-1)$

$\Rightarrow (x+3)(2x-1)$

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

ب) $\dfrac{x+3}{2x^3+9x^2+10x+3}$

$2x^3+9x^2+10x+3 \;\big|\; x+1 \quad 2x^2+7x+3 \Rightarrow (x^2+7x+6) \Rightarrow (x+1)(x+6)$

$(x+3)(2x+1) \Leftarrow \dfrac{(x+3)}{(x+1)(2x+1)(x+3)}$

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

2

$\dfrac{x+3}{x^3-2x^2+2x-1}$

$x^3-2x^2+2x-1 \;\big|\; x-1 \quad x^2-x+1 \Longrightarrow \dfrac{x+3}{(x-1)(x^2-x+1)}$ — $\Delta<0$ جواب ندارد

$D_f = \mathbb{R}-\{1\}$

$\sqrt{\dfrac{x+3}{x^3-2x^2+2x-1}}$

$x^3-2x^2+2x-1 \;\big|\; x-1 \quad x^2-x+1 \Rightarrow \sqrt{\dfrac{x+3}{(x-1)(x^2-x+1)}}$ — $\Delta<0$

$\Rightarrow$ -3, 1: $+ \mid - \mid +$

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

3

$\dfrac{2}{x^2-5|x-1|-2x+5}$

$x-1>0 \Rightarrow x^2-5x+5-2x+5 \Rightarrow x^2-7x+10 \Rightarrow (x-2)(x-5) \Rightarrow \dfrac{2}{(x-2)(x-5)} \Rightarrow \mathbb{R}-\{2,5\}$

$x-1<0 \Rightarrow x^2+5x-5-2x+5 \Rightarrow x^2+3x \Rightarrow \dfrac{2}{x(x+3)} \Rightarrow \mathbb{R}-\{-3,0\}$

$D_f = \mathbb{R}-\{-3, 0, 2, 5\}$

4

الف) $\dfrac{x+3}{|2x+1|-|x+3|} \Rightarrow \dfrac{x+3}{4x^2+4x+1-(x^2+6x+9)} \Rightarrow \dfrac{x+3}{4x^2+4x+1-x^2-6x-9} \Rightarrow \dfrac{x+3}{3x^2-2x-8}$

$(x-2)(3x+4)$

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

ب) $\sqrt{|2x+1|-|x+3|} \Rightarrow \sqrt{|2x+1|^2-|x+3|^2} \Rightarrow \sqrt{(x-2)(3x+4)}$

$(x-2)(3x+4) \geq 0$ — $-\frac{4}{3}$, 2: $+ \mid - \mid +$ — $D_f = (-\infty, -\frac{4}{3}] \cup [2, +\infty)$

5

الف) $\log_2(1-\log_3 x)$ — $1-\log_3 x>0 \Rightarrow 1>\log_3 x \Rightarrow$ ~~II~~

$x>3$ I

$x>0$ III

I $x>$

$\mathrm{I}\cap\mathrm{II} \longrightarrow$ ~~D_f (...)~~ $D_f \Rightarrow \mathrm{I}\cap\mathrm{II}\ (x>3)$

ب) $\log_2(1-\log_{\frac{1}{2}} x)$ — $1-\log_{\frac{1}{2}} x>0$ — $1>\log_{\frac{1}{2}} x \Rightarrow \frac{1}{2}>x$ I

$x>0$ II

$\mathrm{I}\cap\mathrm{II} \Rightarrow D_f = (0, \frac{1}{2})$

$2x-1>0 \Rightarrow 2x>1 \Rightarrow x>\frac{1}{2}$ I

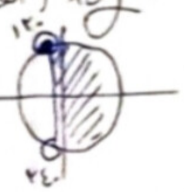
$\log_a^{2x-1} \quad \log_a^{2x-1} \geq 0 \Rightarrow 2x-1 \cancel{\geq} 1 \Rightarrow 2x \cancel{\geq} 2 \quad x \cancel{\geq} 1$ II

$\log_{0.5}$ $\quad \log_{\frac{1}{2}}^{\log_5^{(2x-1)}} \geq 0 \Rightarrow \log_5^{2x-1} \cancel{\geq} 1$

$1 < x \leq 3$

$x \leq 3 \leftarrow 2x-1 \leq 5$ 6

الف) $\log(2\cos x+1) \Rightarrow 2\cos x+1>0 \Rightarrow \cos x > -\frac{1}{2}$



$D_f = \left(2k\pi + \frac{2\pi}{3} , 2k\pi + \frac{4\pi}{3}\right)$ $\quad ① \cap ② \Rightarrow (-\infty,-1)$ 7

I $\frac{x-1}{x+1} > 0 \quad \frac{+ \ -1 \ - \ +1 \ +}{} \quad (-\infty,-1)\cup(1,+\infty)$ ①

ب) $\sqrt{\log \frac{x-1}{x+1}}$ II $\log \frac{x-1}{x+1} \geq 0 \quad \frac{x-1}{x+1} \geq 1 \Rightarrow \frac{x-1-x-1}{x+1} \geq 0 \quad (-\infty,-1)$ ②

$\sqrt{(a+2)x^2+ax+b} \Rightarrow (-\infty,3]$

اگر x را منفی یک در نظر بگیریم

$\sqrt{(a+2)1+(-a)+b} = \sqrt{\cancel{a}+2-\cancel{a}+b}$ 8

$\sqrt{2+b} \Rightarrow 2+b \geq 0 \Rightarrow b \geq -2$

$y=\sqrt{x^2+2x+2-m^2} \rightarrow$ همواره مثبت یا صفر

$\Delta < 0 \Rightarrow 4-4(1)(2-m^2) < 0 \Rightarrow 4-8+4m^2<0 \quad \cancel{4}m^2 < \cancel{4}$ 9

$-1<m<1$

$\Delta = 0 \Rightarrow 4-4(1)(2-m^2)=0 \quad \cancel{4}m^2=\cancel{4} \quad m=\pm 1 \quad -1 \leq m \leq 1$

اضافه به جواب میشن

$f(x) = \frac{\sqrt{4-x^2}}{[x]+[-x]+1} \Rightarrow Z$ $\quad 4-x^2 \geq 0 \Rightarrow 4 \geq x^2 \Rightarrow 2 \geq x \geq -2$ 10

۵ عدد در $-2,-1,0,1,2$ $\leftarrow Z\cap$