نام و نام خانوادگی ......محمد [illegible]...... پاسخنامه تشریحی تکلیف شماره ...1... کلاس ...یازدهم B...

١٠/٧٥

الف) $y^3=2x^2+2x-1 \Rightarrow f(x_1)=f(x_2) \Rightarrow 2x_1^2=2x_2^2 \,,\, 2x_1=2x_2 \Rightarrow 2x_1^2+2x_1+1=y_1^3$ ✓ ✓

$2x_2^2+2x_2+1=y_2^3$ دو y

ب) $x\cos y=y\cos x \Rightarrow \frac{\cos y}{y}=\frac{\cos x}{x} \Rightarrow \left.\begin{array}{l} x=2k\frac{\pi}{2}+\frac{\pi}{2} \\ y=2k\frac{\pi}{4}+\frac{\pi}{2}\end{array}\right\} \Rightarrow$ k مقادیر مختلفی می‌توانند داشته باشند ← تابع نیست ✓

١ — 1

ج) α

د) α

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

٢

$x=-3 \Rightarrow a+2(-3)=a-6$

$x=-1 \Rightarrow a+2(-1)=a-2 \longrightarrow a-2=2-b \Rightarrow \boxed{a+b=4}$ ✓ — 2

$x=1 \Rightarrow 2x^2-b=2(-1)^2-b=2-b$

$f(x)=\sqrt{a-bx-x^2}$ $\quad [b,a] \quad a+b$

٠/٢٥

$a-bx-x^2\geq 0 \Rightarrow x^2+bx-a\leq 0$ a و b ریشه‌های آن هستند — 3

$S=-b \longrightarrow a+b=-b \longrightarrow a=-2b$

$P=a\times b=-a \longrightarrow b=-1$

$a=2$

$y=\frac{2}{\sqrt{ax^2+bx+c}}$ $\quad (-\infty,2)$

٠ $\quad \alpha$

$ax^2+bx+c\geq 0$ — 4

الف) $|x|-[x]\neq 0 \Rightarrow x\neq 0 \quad D_f=\mathbb{R}-\{0\}$ $\quad D_f=\mathbb{R}-W$

٠/٥

ب) $\sqrt{x}+\sqrt{y}=9 \quad \sqrt{y}=9-\sqrt{x}$

$9-\sqrt{x}\geq 0 \longrightarrow \sqrt{x}\leq 9 \quad x\leq 81$ — 5

$D_f=[0,81]$

Scanned with CamScanner

الف) $f(x) = \sqrt{\log_x^{3x-1}} \Rightarrow \log_x^{3x-1} \geq 0$ $x \neq 1$, $0<x<1$: $3x-1 \leq 1 \Rightarrow \frac{1}{3} \leq x$ $\frac{1}{3} < x < 1$

$x > 1 \Rightarrow 3x-1 \geq 1 \Rightarrow x \geq \frac{2}{3}$ $1 < x$ ①

$\Rightarrow [\frac{2}{3}, \infty) - \{1\}$ $D_f = (\frac{1}{3}, \frac{2}{3}] \cup (1, +\infty)$ $0 < 3x - 1 \leq x$

ب) $\log \frac{1}{6 + \sqrt{|x|} - |x|} \Rightarrow 6 + \sqrt{|x|} - |x| > 0$ $x \leq \frac{1}{2}$ 6

$\Rightarrow |x| - \sqrt{|x|} < 6$

$-2 < \sqrt{|x|} < 3 \rightarrow \sqrt{|x|} < 3 \rightarrow |x| < 9$

بدیهی

$-9 < x < 9$ $D_f = (-9, 9)$

$\frac{3x+2}{x+b} + a \geq 0 \Rightarrow \frac{3x + 2 + ax + ab}{x+b} \geq 0$ ⓪

$x + b \neq 0 \Rightarrow x \neq -b$

$a = -3$

$b = -2$ 7

$f(x) - x + 1 \geq 0$ $f(x) \geq x - 1$ $\Rightarrow$ $x \geq 5 \Rightarrow 2x - 1 \geq x - 1$, $x \geq 0$ $\overset{\cap}{\Rightarrow} x \geq 5$

$f(x) \begin{cases} 2x - 1 & x \geq 5 \\ 4x + 3 & x < 5 \end{cases}$ $x < 5 \Rightarrow 4x + 3 \geq x - 1$, $3x \geq -4$, $x \geq \frac{-4}{3}$ $\overset{\cap}{\Rightarrow} 5 > x \geq \frac{-4}{3}$ ② 8

$\cup \Rightarrow$ $\cancel{(x \geq 5)}$ $\cancel{[5, \infty)}$ $[\frac{-4}{3}, \infty)$

$\frac{24x^3 + 36x^2 + 18x + 3}{(4x^2 + 4x + 1)^2} = \frac{3(8x^3 + 12x^2 + 6x + 1)}{((2x+1)^2)^2} = \frac{3(2x+1)^3}{(2x+1)^4} = \frac{3}{2x+1} \Rightarrow D_f = \mathbb{R} - \{\frac{-1}{2}\}$

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

② 9

$1 - \log(2x - a) \geq 0 \Rightarrow \log(2x - a) \leq 1 \Rightarrow 0 < 2x - a \leq 10 \Rightarrow a < 2x \leq 10 + a$

$\frac{a}{2} < x \leq \frac{10 + a}{2} \Rightarrow b = \frac{a}{2}$ $c = \frac{10 + a}{2}$ $c - b = \frac{10 + a}{2} - \frac{a}{2} = \frac{10}{2} = 5$ ② 10

Scanned with CamScanner