Year: Month: Date: ( ) Subject:

14,75

$y=\frac{\sin x-2}{2\cos x+1}$ $\quad 2\cos x+1\neq 0$, $2\cos x\neq -1$, $\cos x\neq -\frac{1}{2}$ $\quad D_f=\mathbb{R}-\{2k\pi+\frac{2\pi}{3}, 2k\pi+\frac{4\pi}{3}\}$

2 ✓

$y=\frac{\sin x+3}{\cos x-1}$ $\quad \cos x-1\neq 0$, $\cos x\neq 1$ $\quad D_f=\mathbb{R}-\{2k\pi\}$

$y=\frac{2\sin x+1}{\tan x+1}$ $\quad \tan x+1\neq 0$, $\tan x\neq -1$ / $\tan=\frac{\sin}{\cos}$, $\cos\neq 0$ $\rightarrow \begin{cases}\tan x\neq -1 \rightarrow x\neq k\pi-\frac{\pi}{4}\\ \cos x\neq 0 \rightarrow x\neq k\pi+\frac{\pi}{2}\end{cases} \Rightarrow D_f=\mathbb{R}-\{k\pi-\frac{\pi}{4}, k\pi+\frac{\pi}{2}\}$

2 ✓

$y=\frac{\cos x+1}{\cot x-1}$ $\quad \cot x-1\neq 0$, $\cot x\neq 1$ / $\cot=\frac{\cos}{\sin}$, $\sin x\neq 0$ $\quad \begin{cases}\cot x\neq 1 \rightarrow x\neq k\pi+\frac{\pi}{4}\\ \sin x\neq 0 \rightarrow x\neq k\pi\end{cases} \Rightarrow D_f=\mathbb{R}-\{k\pi+\frac{\pi}{4}, k\pi\}$

$\sin y=x^2-2 \rightarrow -1\leq x^2-2\leq 1 \rightarrow 1\leq x^2\leq 3 \rightarrow \cancel{1\leq x\leq 3 \rightarrow D=[1,3]}$

$1\leq x\leq \sqrt{3}$
$-\sqrt{3}\leq x\leq -1$

1,5

$y=\arccos(\sqrt{x}-3) \rightarrow -1\leq \sqrt{x}-3\leq 1 \rightarrow 2\leq \sqrt{x}\leq 4 \rightarrow 4\leq x\leq 16$ $\quad D_f=[4,16]$ ($x\geq 0$ A; $A\cap B$)

$\cos y=|x|-3 \rightarrow -1\leq |x|-3\leq 1 \rightarrow 2\leq |x|\leq 4 \rightarrow D_f=\cancel{[2,4]}$

1 $\quad [-4,-2]\cup[2,4]$

$y=\arcsin(x^2+3x+1) \rightarrow -1\leq x^2+3x+1\leq 1 \rightarrow \begin{cases}x^2+3x+1\leq 1 \rightarrow x^2+3x\leq 0 \rightarrow x(x+3)\leq 0\\ x^2+3x+1\geq -1 \rightarrow x^2+3x+2\geq 0 \rightarrow (x+1)(x+2)\geq 0\end{cases}$

$x=0, x=-3$ $\quad x=-1, x=-2$

$[-3,-2]\cup[-1,0]$ $\quad D_f=\cancel{[-3,0]\cup(-\infty,-2]}\cup[-1,+\infty)$

$y=\log_2 (x^2-4) \rightarrow x^2-4>0 \rightarrow x^2>4 \rightarrow x>2$, $x<-2$ $\quad D_f=(-\infty,-2)\cup(2,+\infty)$ ✓

$y=\log_2 (2-|x|) \rightarrow 2-|x|>0 \quad 2>|x| \rightarrow -2<x<2$ $\quad D_f=(-2,2)$

2 ✓

$y=\log_{x-3}(5-x) \rightarrow 5-x>0 \quad 5>x$; $x-3>0 \quad x>3$ $\rightarrow D_f=(3,5)-\{4\}$

$x-3\neq 1 \rightarrow x\neq 4$

1,75

$y=\log_{x+3}(x^2-1)$ $\quad x^2-1>0 \quad x^2>1 \rightarrow x>1$, $x<-1$; $x+3>0 \quad x>-3$ $\quad D_f=(-3,-1)\cup(1,+\infty)-\{-2\}$

$x+3\neq 1$
$x\neq -2$

$x^2 - 4x + 3 \mid x-1$, $(x-3)$; $-x^2 + x$; $-3x + 3$; $+3x - 3$; 0

$\frac{x^2}{x} = x(x-1) = x^2 - x$

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

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$y = \log \frac{x^2 - 4x + 3}{x - 3}$ ~~$\frac{x-3}{x-3} = 1$ $D_f = [1]$~~ $\frac{(x-1)(x-3)}{(x-3)} > 0$ $-\ 1\ +\ 3\ +$ -۷

۵/ $D_f = (1, +\infty) - \{3\}$

$y = \log_{x+5} \frac{x+3}{x-2}$ $\frac{x+3}{x-2} > 0$ $x+3>0$ $x>-3$ ~~$D_f = (-3, +\infty)$~~

$x+5 \neq 1$, $x \neq -4$; $x+5>0$, $x>-5$

$\frac{x+3}{x-2} > 0$ -3 2 $+\ -\ +$ -۸

$(-5, -3) \cup (2, +\infty) - \{-4\}$

$y = \sqrt{3 - \log_2 (x-2)}$ $\begin{cases} x-2>0 \to x>2 \\ 3 - \log_2 (x-2) \geq 0 \to \log_2^{x-2} \leq 3 \to x-2 \leq 8 \to x \leq 10 \end{cases}$ $D_f = (2, 10]$

$y = \log(2 \log_4 x - 1) \to 2\log_4 x - 1 > 0 \to \log_4 x > +\frac{1}{2}$ ($x>0$) $x > 1.7$ [illegible] $D_f = (1.7[illegible], +\infty)$

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$y = \frac{3}{4^x + 1}$ $4^x + 1 \neq 0$, $4^x \neq -1$ $D_f = \mathbb{R}$

$y = \frac{3}{4^x - 1}$ $4^x - 1 \neq 0$, $4^x \neq 1 \to x \neq 0$ $D_f = \mathbb{R} - \{0\}$

$y = \frac{3}{4^x - 2}$ $4^x - 2 \neq 0$, $4^x \neq 2$ $x \neq \log_4 2 \to D_f = \mathbb{R} - \{\log_4 2\}$ ۲

$y = \frac{3}{4^x - 3}$ $4^x - 3 \neq 0$, $4^x \neq 3$ $x \neq \log_4 3 \to D_f = \mathbb{R} - \{\log_4 3\}$

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$y = (4x+1)!$ $4x+1 \in W \to 4x \in W-1 \to x \in \frac{W-1}{4} \to D_f = \{x \mid x = \frac{k-1}{4}, k \in W\}$

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$y = \left(\frac{3x-2}{2x-5}\right)!$ $\frac{3x-2}{2x-5} \in W \to 3x - 2 = 2xW - 5W \Rightarrow 3x - 2xW = 2 - 5W$

$x = \frac{2-5W}{3-2W}$ $D_f = \{x \mid x = \frac{3-2k}{2-5k}, k \in W\}$