9 الف) $1-\log_{\frac{1}{2}}^{x-1} \geq 0 \to 1 \geq \log_{\frac{1}{2}}^{x-1} \;—\; x-1 \leq \frac{1}{2} \to x \leq \frac{3}{2}) \cap \Rightarrow D = [1, \frac{3}{2}]$

$(\frac{1}{2})$

$x-1>0 \to x>1$

$D_f = [\frac{3}{2}, +\infty)$

ب) $x^2 - x \geq 0 \to x(x-1) \geq 0 \to$ $\begin{array}{c|c|c} + & - & + \end{array}$ (1)

$1-\log_4^{x^2-3x} \neq 0 \to 1 \neq \log_4^{x^2-3x} \to x^2-3x \neq 4 \to (x+1)(x-4) \neq 0 \to x \neq -1, 4$ (2)

$x^2-3x \neq 0 \to x(x-3)$ $\begin{array}{c|c|c} + & - & + \end{array}$ (3)

$D = (1) \cap (2) \cap (3) = (-\infty, -1) \cup (-1, 0) \cup (3, 4) \cup (4, +\infty)$

1,5

16 الف) $2^{4x-x^2} - 8 \geq 0 \to 2^{4x-x^2} \geq 2^3 \to 4x - x^2 \geq 3 \to 0 \geq x^2 - 4x + 3$

$\to (x-1)(x-3) \leq 0 \to$ $\begin{array}{c|c|c} + & - & + \end{array}$ $\to D = [1, 3]$

2

ب) $\frac{3x+5}{2x+4} \in W \to 3x+5 = 2xW + 4W \to 3x - 2xW = 4W - 5$

$\to x = \frac{4W-5}{3-2W} \Rightarrow D = [x \mid x = \frac{4k-5}{3-2k}, k \in W]$

۱۸,۲۵

۱) $2(x^2-2x)+y^2+6y+12=0 \rightarrow 2(x-1)^2+(y+3)^2=11-k$

$11-k=0 \rightarrow k=11 \rightarrow 2(x-1)^2+(y+3)^2=0 \rightarrow x=1,\ y=-3$

$11-k<0 \rightarrow 11<k \rightarrow 2(x-1)^2+(y+3)^2$: عدد منفی $\rightarrow$ نا ممکن

۲

۲) $\xrightarrow{x=a} a^2+4a=2a+a+2 \rightarrow a^2+a-2=0 \rightarrow (a+2)(a-1)=0 \rightarrow a=-2$ یا 1

$a>0$

$F(1)=1+4=5$

۲

۳) $x+1\geq 2 \rightarrow x\geq 1$

$x+1\leq -2 \rightarrow x\leq -3 \Big) \cup \rightarrow [1,+\infty)\cup(-\infty,-3]$

$\xrightarrow{x=-3} 18-b=a-6 \rightarrow a+b=24$

۲

فاطمه صیرفی ۱۱ ریاضی ۲

۴) $4x-a\geq 0 \rightarrow 4x\geq a \rightarrow x\geq \frac{a}{4}$

$b-3x\geq 0 \rightarrow b\geq 3x \rightarrow \frac{b}{3}\geq x \Big) \cap \rightarrow \frac{a}{4}=\frac{b}{3}=2 \rightarrow a=8,\ b=6 \Big) \rightarrow \frac{b}{a}=\frac{6}{12}=\frac{1}{2}$

۲

۵) الف) $\frac{x+1}{|x-3|}\geq 0 \rightarrow x=-1,\ x=3$

$\frac{4-x}{x^2+2x+4}\geq 0 \rightarrow x=4$

$\Big)\cup \rightarrow D_y=$ ~~...~~ $R-[3]$

$\Delta<0$ همیشه مثبت

$D=[-1,4]-\{3\}$

۱

ب) $[x]-4\geq 0 \rightarrow [x]\geq 4 \rightarrow x\geq 4$

$2-[x]\geq 0 \rightarrow 2\geq [x] \rightarrow 3> x \Big)\cap \rightarrow D_y:(-\infty,2]\cup[4,+\infty) \rightarrow \varnothing$

۶) الف) $\frac{x^2-x-6}{x^4-13x^2+36}\geq 0 \rightarrow \frac{(x+2)(x-3)}{(x+2)(x-2)(x-3)(x+3)}\geq 0 \rightarrow$ $+\ -\ -\ +\ +$ ($-3,\ -2^*,\ 2,\ 3^*$) $\rightarrow D_y:(3,+\infty)\cup(2,3)\cup(-\infty,-3)$

۲

ب) $\frac{(x-1)(x+2)(x-3)}{(x+1)(x-2)(x+3)}\geq 0$ $+\ -\ +\ -\ +\ -\ +$ ($-3,\ -2,\ -1,\ 1,\ 2,\ 3$) $\rightarrow D_y:[3,+\infty)\cup[1,2)\cup[-2,-1)\cup(-\infty,-3)$

۷) الف) $[-x]-2\geq 0 \rightarrow [-x]\geq 2 \rightarrow x\leq -2 \rightarrow D_y:(-\infty,-2]$

۲

ب) $[x]^2-2[x]-3\neq 0 \rightarrow ([x]+1)([x]-3)\neq 0 \rightarrow [x]\neq -1,\ [x]\neq 3 \rightarrow x\notin[-1,0),\ x\notin[3,4)$

$\rightarrow D_y:R-\big([-1,0)\cup[3,4)\big)$

۸) الف) $\frac{\frac{\cos+\sin}{\sin}}{\frac{\sin+\cos}{\cos}}$ $\rightarrow \sin+\cos\neq 0 \rightarrow \sin=-\cos \rightarrow k\pi-\frac{\pi}{4}$; $\cos\neq 0 \rightarrow k\pi+\frac{\pi}{2}$; $\sin\neq 0 \rightarrow k\pi$ $\Big] \rightarrow D:R-\left[k\pi-\frac{\pi}{4},\ k\pi+\frac{\pi}{2},\ k\pi\right]$

۱,۷۵

ب) $1-4\sin^2\geq 0 \rightarrow \frac{1}{4}\geq \sin^2 \rightarrow \frac{1}{2}\geq \sin\geq -\frac{1}{2} \rightarrow D=\left[k\pi+\frac{\pi}{6},\ k\pi-\frac{\pi}{6}\right]$

$D=\left[k\pi-\frac{\pi}{6},\ k\pi+\frac{\pi}{6}\right]$