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

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

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

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

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

[illegible]

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

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

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

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

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

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

$11-k<0 \longrightarrow 11<k \longrightarrow 2(x-1)^2+(y+3)^2=$ عدد منفی $\longrightarrow$ تابع تهی

2. $\xrightarrow{x=a} a^2+4a=\overset{3a}{2a+a}+2 \longrightarrow a^2+a-2=0 \longrightarrow (a+2)(a-1)=0 \longrightarrow a=-2$ یا 1 (-2 ✗، 1 ✓، $a>0$)

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

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

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

فاطمه صبوری

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

5. الف) $\frac{x+1}{|x-3|}\geq 0 \longrightarrow x=-1,\ x=3$; $-1,\ 3^*$: $-\ |\ +\ |\ +$

$\frac{6-x}{x^2+2x+4}\geq 0 \longrightarrow x=6$; 6: $+\ |\ -$ ($\Delta<0$ تعیین علامت)

$\Big)\cup \longrightarrow D_y=$ ~~...~~ $R-\{3\}$

ب) $[x]-4\geq 0 \longrightarrow [x]\geq 4 \longrightarrow x\geq 4$
$2-[x]\geq 0 \longrightarrow 2\geq [x] \longrightarrow 2\geq x$ $\Big)\cup \longrightarrow D_y=(-\infty,2]\cup[4,+\infty)$

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

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

7. الف) $[-x]-2\geq 0 \longrightarrow [-x]\geq 2 \longrightarrow x\leq -2 \longrightarrow D_y=(-\infty,-2]$

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

$\longrightarrow D_y=R-\left([-1,0)\cup[3,4)\right)$

8. الف) $\dfrac{\frac{\cos+\sin}{\sin}}{\frac{\sin+\cos}{\cos}}$
$\sin+\cos\neq 0 \longrightarrow \sin=-\cos \longrightarrow k\pi-\frac{\pi}{4}$
$\cos\neq 0 \longrightarrow k\pi+\frac{\pi}{2}$
$\sin\neq 0 \longrightarrow k\pi$
$\longrightarrow D=R-\{k\pi-\frac{\pi}{4},\ k\pi+\frac{\pi}{2},\ k\pi\}$

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