

$$2x^2 + y^2 - 4x + 6y + k = 0$$

$$2x^2 - 4x + y^2 + 6y + k = 0$$

$$2(x^2 - 2x + 1 - 1) + (y^2 + 6y + 9 - 9) + k = 0$$

$$2(x-1)^2 - 2 + (y+3)^2 - 9 + k = 0$$

$$2(x-1)^2 + (y+3)^2 - 11 + k = 0 \rightarrow 2(x-1)^2 + (y+3)^2 = 11 - k \Rightarrow \boxed{k=11}$$

$$\begin{aligned} x=a \rightarrow x^2+4x &= 2x+a+2 \text{ باشد} \rightarrow a^2+4a = 2a+a+2 \rightarrow a^2+a-2=0 \\ (a+2)(a-1) &= 0 \\ \Rightarrow a &= +2, -1 \end{aligned}$$

$$\text{طبق فرض } a > 0 \Rightarrow \boxed{a=2}$$

$$\begin{cases} x^2+4x & : x > 2 \\ 2x+4 & : x \leq 2 \end{cases} \Rightarrow f(1) = 2x+4 = 2(1)+4 = \boxed{6} \text{ پاسخ}$$

$$\begin{cases} 2x^2-b & ; |x+1| > 2 \rightarrow \begin{cases} x+1 > 2 \rightarrow \boxed{x > 1} \\ x+1 < -2 \rightarrow \boxed{x < -3} \end{cases} \\ a+2x & ; -3 \leq x \leq 1 \end{cases}$$

مشترک

$$\begin{aligned} \text{پس به ازای } x=3 \text{ و } x=-3 \text{ هم برابرند} \rightarrow a-4 &= 11-b \rightarrow \boxed{a+b=11+4=15} \end{aligned}$$

$$y = \sqrt{4x-a} + \sqrt{b-3x} \rightarrow D_f = \{2\}$$

$$\left. \begin{aligned} 4x > a &\rightarrow \boxed{a < 12} \\ b > 3x &\rightarrow \boxed{b > 6} \end{aligned} \right\} \begin{aligned} \text{نیمه باز باشد} &\Rightarrow a=12 \\ \text{یک جواب دارد} &\Rightarrow b=6 \end{aligned} \rightarrow \boxed{\frac{b}{a} = \frac{6}{12} = \frac{1}{2}}$$

$$\begin{aligned} x > -1 \rightarrow \frac{x+1}{|x+1|} > 0 &\Rightarrow [-1, +\infty) - \{3\} \\ \frac{4-x}{x^2+2x+4} > 0 &\Rightarrow \boxed{x < 4} \end{aligned}$$

استثنای

$$\boxed{[-1, 4] - \{3\}}$$

$$\begin{aligned} \text{ب) } [x]-4 > 0 &\rightarrow [x] > 4 \\ &\hookrightarrow [4, +\infty) \end{aligned}$$

$$\begin{aligned} 2-[x] > 0 &\rightarrow [x] < 2 \\ &\hookrightarrow (-\infty, 2) \end{aligned}$$

$$\rightarrow D_f = \emptyset \text{ این دو استرژ آرد ندارند}$$

$$\frac{(x-3)(x+2)}{(x^2-9)(x^2-4)}$$

$\begin{matrix} \leftarrow & & \leftarrow \\ \pm 3 & & \pm 2 \end{matrix}$

$$\frac{x}{x^2-9} - \frac{2}{x^2-4} + \frac{2}{x^2-9} + \frac{2}{x^2-4}$$

$$D_f = (-\infty, -3) \cup (2, 3) \cup (3, +\infty)$$

$$\Rightarrow \frac{(x^2-x-6)(x-1)}{(x^2+x-6)(x+1)} \rightarrow \frac{(x-3)(x+2)(x-1)}{(x+3)(x-2)(x+1)}$$

$$\frac{x}{x^2-6} - \frac{1}{x-2} + \frac{1}{x-2} + \frac{2}{x+1}$$

$$(-\infty, -3) \cup [-2, -1) \cup [1, 2) \cup (3, +\infty)$$

$$\subset D_f$$

الف) $[-x] - 2 > 0$

$$[-x] > 2$$

$$D_f = (-\infty, -1)$$

$$\Rightarrow \frac{dx^2+4}{[x^2]-2[x]-3}$$

$$([x]-3)([x]+1) \neq 0$$

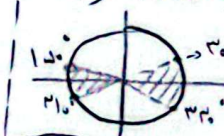
$$D_f = \mathbb{R} - \{[3, 4) \cup [-1, 0)\}$$

الف) $\frac{\cot x + 1}{\tan x + 1} \rightarrow \begin{cases} \sin \neq 0 \\ \cos \neq 0 \\ \tan \neq -1 \end{cases}$



$$\rightarrow \mathbb{R} - \left\{ \frac{k\pi}{2}, k\pi + \frac{3\pi}{4} \right\}$$

$$\Rightarrow \sin^2 x \leq 1 \rightarrow \sin^2 x \leq \frac{1}{4}$$



$$-\frac{1}{2} \leq \sin x \leq \frac{1}{2}$$

$$\rightarrow [2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}] \cup [2k\pi + \frac{7\pi}{6}, 2k\pi + \frac{11\pi}{6}]$$

الف) $1 - \log_{\frac{1}{4}} x > 0$

$$\log_{\frac{1}{4}} x < 1$$

$$x-1 > \frac{1}{4} \rightarrow x > \frac{5}{4}$$

$$x-1 > 0 \rightarrow x > 1$$

$$\Rightarrow x^2 - x > 0 \rightarrow x(x-1) > 0$$

$$1 - \log_{\frac{1}{4}} x^2 - 3x \neq 0 \rightarrow \frac{x^2-3x}{x^2-3x} \neq 0 \rightarrow \frac{x(x-3)}{x(x-3)} \neq 0$$

$$x \neq \{-1, 4\}$$

$$\frac{2x+d}{2x+f} \in W, \frac{d-f-b}{d-f-a} \text{ ليس } \frac{+fW-d}{2W-f}$$

$$\Rightarrow \frac{fW-d}{2W-f} \in X$$

$$\Rightarrow D_f = \left\{ x \mid x = \frac{fk-d}{2-2k}, k \in W \right\}$$

$$\frac{-x^2+fx}{2} > 1 \Rightarrow -x^2+fx > 2$$

$$x^2+fx+3 > 0 \rightarrow -x^2+fx-3 > 0$$

$$(x+3)(x+1) > 0 \Rightarrow \text{مساوية } = 3, 1$$

$$\frac{x}{x^2-4} + \frac{3}{x^2-4} \rightarrow D_f = [1, 3]$$