

$$2x^2 + y^2 - 4x + 6y + K = 0 \Rightarrow 2(x-1)^2 - 2 + (y+3)^2 - 9 + K = 0$$

$$K = 11$$

$$\text{if } x = a \Rightarrow a^2 + 4a = 3a + 2$$

$$a^2 + a - 2 \Rightarrow (a+2)(a-1) - 2 \quad (1) \Rightarrow \infty$$

(a > 0)

$$|x+1| > 2$$

$$\begin{cases} x+1 > 2 \Rightarrow x > 1 \\ x+1 < -2 \Rightarrow x < -3 \end{cases}$$

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مشتق بین ۲ ضابطه

$$|a-b| = a-4$$

$$a+b = 24$$

$$4x - a \geq 0 \Rightarrow x \geq \frac{a}{4} \Rightarrow a = 12$$

$$b - 3x \geq 0 \Rightarrow x \leq \frac{b}{3} \Rightarrow b = 4$$

$$\frac{b}{a} = \frac{4}{12} = \frac{1}{3}$$

$$\text{الف) } \sqrt{\frac{x+1}{|x-3|}} \rightarrow -1$$

عبارت مثبت به صورت ۳/۲

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

مقام مثبت  
 $\Delta < 0$

$$\frac{-1}{-1+}$$

$$[-1 + \infty)$$

$$\frac{4}{+1-}$$

$$(-\infty 4] \quad Df = [-1 4] \cup [4 \infty)$$

$$\sqrt{[x]-4} \Rightarrow [x] \geq 4 \Rightarrow [4 + \infty)$$

$$\sqrt{2-[x]} \Rightarrow [x] \leq 2 \Rightarrow (-\infty 3)$$

$$Df = \emptyset$$

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$$x^2 - x - 6 \rightarrow (x-3)(x+2) \Rightarrow x = 3, -2$$

$$x^2 - 13x^2 + 36 \rightarrow (x^2-9)(x^2-4) \Rightarrow -2+2, -3+3$$

الف)  $\frac{-3}{+} \frac{-2}{+} \frac{2}{-} \frac{3}{+}$

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

$$b) \frac{x^2 - 4x^2 - 5x + 6}{x^2 + 2x^2 - 5x - 4} \rightarrow \frac{(x-1)(x-3)(x+2)}{(x+1)(x+3)(x-2)}$$

$$\frac{-3}{+} \frac{-2}{+} \frac{-1}{+} \frac{1}{-} \frac{2}{+} \frac{3}{+}$$

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

الف)  $\sqrt{[-x] - 2} \Rightarrow [-x] \geq 2$

$$D_f = (-\infty, -2]$$

ب)  $\frac{5x^2 + 9}{[x]^2 - 2[x] - 3} \rightarrow ([x]-3)([x]+1)$

$$\frac{-1}{+} \frac{0}{0} \frac{3}{-} \frac{4}{+}$$

$$D_f = (-\infty, -1) \cup [0, 3) \cup [4, +\infty)$$

الف)  $\frac{\cot x + 1}{\tan x + 1}$

(I)  $\cos \neq 0$  

(II)  $\sin \neq 0$  

(III)  $\tan \neq -1 \Rightarrow$  

$$D_f = R - \left\{ \frac{k\pi}{2}, k\pi - \frac{\pi}{4} \right\}$$

ب)  $\sqrt{1 - \sin^2 x}$

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

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


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

الف)  $\sqrt{1 - \log_{\frac{1}{2}}^{x-1}}$  (I)  $x-1 > 0 \Rightarrow x > 1$

(II)\*  $\log_{\frac{1}{2}}^{x-1} = \log_{\frac{1}{2}}^{\frac{1}{2}} \Rightarrow \log_{\frac{1}{2}}^{x-1} \geq -1$

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

(I)  $\cup$  (II)  $\Rightarrow x \geq \frac{3}{2}$

$1 - \log_{\frac{1}{2}}^{x-1} \geq 0$  \*

ب) (I)  $\Rightarrow x^2 - x \geq 0 \Rightarrow \frac{0}{+1-1+} \Rightarrow (-\infty, 0] \cup [1, +\infty)$

(II)  $\Rightarrow x^2 - 3x > 0 \Rightarrow \frac{x(x-3)}{+} \frac{0}{+} \frac{3}{-} \Rightarrow (-\infty, 0) \cup (3, +\infty)$

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

$$x^2 - 3x \neq 2 \Rightarrow (x-4)(x+1) \neq 0 \Rightarrow x \neq 4, -1$$

$$D_f = (-\infty, 0) \cup (3, +\infty) - \{4, -1\}$$

الف)  $\sqrt{\frac{5x-8x^2}{2} - 1}$   $\frac{5x-8x^2}{2} - 1 \geq 0$

$$5x - 8x^2 \geq 2 \Rightarrow -8x^2 + 5x - 2 \geq 0$$

$$8x^2 - 5x + 2 \leq 0 \Rightarrow (x-3)(x-1) \rightarrow 1$$

$$\frac{1}{+} \frac{3}{-}$$

$$D_f = [1, 3]$$

ب)  $\frac{ax+b}{cx+d} = y \Rightarrow x = -\frac{dy-b}{cy-a}$

$$x = -\frac{fw-d}{rw-3} = \frac{d-fw}{rw-3}$$

$$D_f = \left\{ x \mid x = \frac{d-fk}{rk-3}, k \in w \right\}$$