

$$y = \frac{x+3}{2x^3+3x^2-11x+13} \rightarrow D_f = \mathbb{R} - \{-1, -9\}$$

$\underbrace{2x^3+3x^2-11x+13}_{\text{مجموعه مضروب} = 0} = (x-1)(2x+13)(x-1)$

$$y = \frac{x+3}{2x^3+9x^2+10x+3} = \frac{x+3}{2(x+1)(x+1)(x+4)} \rightarrow D_f = \mathbb{R} - \{-1, -4\}$$

$$y = \frac{x+3}{x^3-2x^2+2x-1} = \frac{x+3}{(x+1)(x^2-x+1)} \rightarrow \mathbb{R} - \{-1\} \rightarrow D_f$$

$\Delta < 0$

$$y = \sqrt{\frac{x+3}{x^3-2x^2+2x-1}} \rightarrow \frac{-3}{\infty} - \frac{-1}{\infty} \rightarrow (-1, \infty) \cup (-\infty, -3]$$

$$\frac{y}{x^2-2|x-1|-2x+5} = y \rightarrow \begin{cases} x \geq 1 \rightarrow x^2-2(x-1)-2x+5 = x^2-4x+7 \\ x < 1 \rightarrow x^2-2(1-x)-2x+5 = x^2-2x+3 \end{cases}$$

$R - \{2, 5, 0, 4\}$

$$\frac{x+3}{|2x+1|-|x+3|} \rightarrow \begin{cases} |2x+1|=|x+3| \\ 2x+1=x+3 \rightarrow x=2 \\ 2x+1=-x-3 \rightarrow 3x=-4 \rightarrow x=-\frac{4}{3} \\ -2x-1=x+3 \rightarrow -3x=4 \rightarrow x=-\frac{4}{3} \\ -2x-1=-x-3 \rightarrow -x=-2 \rightarrow x=2 \end{cases}$$

$R - \{-\frac{4}{3}, 2\}$

$$y = \sqrt{|2x+1|-|x+3|} \rightarrow \begin{cases} x > -\frac{1}{2} \rightarrow \sqrt{x-2} \rightarrow x \geq 2 \rightarrow [2, \infty) \\ x \leq -\frac{3}{2} \rightarrow \sqrt{2-x} \rightarrow 2 \geq x \end{cases}$$

$$\log_2(1-\log_3 x) \rightarrow 1-\log_3 x > 0 \rightarrow 1 > \log_3 x \rightarrow 3 > x$$

$x > 0 \rightarrow D_f = (0, 3)$

$$\log_2(1-\log_{\frac{1}{2}} x) \rightarrow 1-\log_{\frac{1}{2}} x > 0 \rightarrow 1 > \log_{\frac{1}{2}} x \rightarrow \frac{1}{2} > x$$

$x > 0 \rightarrow D_f = (0, \frac{1}{2})$

$$f(x) = \sqrt{\log_{\frac{1}{\Delta}} (\log_{\Delta} (2x-1))} \rightarrow \begin{cases} \log_{\Delta} (2x-1) > 0 \\ 2x-1 > 0 \end{cases} \rightarrow \begin{cases} 2x-1 > 1 \\ x > 1 \end{cases}$$

$$(1, +\infty) = D_f \rightarrow x > \frac{1}{2}$$

$$y = \log(2\cos x + 1) \rightarrow 2\cos x + 1 > 0 \rightarrow 2\cos x > -1 \rightarrow \cos x > -\frac{1}{2}$$

$$x-1 > 0 \leftarrow \frac{x-1}{x+1} > 0 \rightarrow \log_{10} \frac{x-1}{x+1} \geq 0 \rightarrow \frac{x-1}{x+1} \geq 1 \rightarrow \frac{-2}{x+1} \geq 0 \rightarrow x+1 < 0 \rightarrow x < -1$$

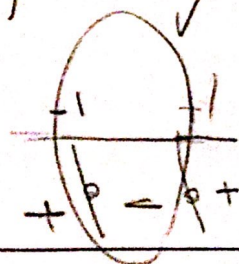
$\mathbb{R} - \left[K\pi - \frac{\pi}{3}, K\pi + \frac{\pi}{3} \right]$

$$f(x) = \sqrt{(a+2)x + b} \rightarrow \begin{cases} a+2=0 \rightarrow a=-2 \\ -2x+b \geq 0 \end{cases} \rightarrow -2x \geq -b \rightarrow -x \geq -\frac{b}{2} \rightarrow x \leq \frac{b}{2} \rightarrow b=4$$

$$f(x) = \sqrt{x^2 + 2x + 2 - m^2}$$

بسيطه = +1
مميزه = -1 $\rightarrow +1 - (-1) = 2$

$$\rightarrow 1 + (-1)(2 - m^2) \leq 0 \rightarrow 1 - 2 + m^2 \leq 0 \rightarrow m^2 - 1 \leq 0 \rightarrow m^2 \leq 1$$



$$\sqrt{4-x^2} \rightarrow 4-x^2 \geq 0 \rightarrow x^2 \leq 4 \rightarrow -2 \leq x \leq 2$$

$$[x] + [-x] + 1 \rightarrow [x] + [-x] \neq (-1) \rightarrow [x] + [-x] \in \mathbb{Z}$$

$$\begin{cases} -2 \\ -1 \\ 0 \\ 1 \\ 2 \end{cases} \rightarrow x \Delta \text{ مبيع}$$