

$$a - r = 0 \rightarrow a = r \rightarrow f(x) \sqrt{rx + b} \quad rx + b > 0 \rightarrow rx > -b \rightarrow x > -\frac{b}{r} \quad -1$$

$$-\frac{b}{r} = r \rightarrow b = -r^2$$

$$x^2 + rx + 1 - m^2 \geq 0$$

$$x^2 + rx + 1 - m^2 = (x+1)^2 + 1 - m^2 \quad (x+1)^2 \geq 0 \quad 1 - m^2 = 0 \rightarrow 1 = m^2 \rightarrow m = \pm 1$$

$$1 - (-1) = 2$$

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

$$II \rightarrow [x] + [-x] + 1 \neq 0 \rightarrow \text{بما } x \in \mathbb{Z} \text{ من زوج}$$

$$x \in \mathbb{Z} \rightarrow 0 \quad x \notin \mathbb{Z} \rightarrow -1$$

$$I \cap II = [-\sqrt{r}, \sqrt{r}] \cap \mathbb{Z} = \{-1, 0, 1\}$$

$$الف) y = \sqrt{x^2 + rx^2} \quad x^2 + rx^2 \geq 0 \rightarrow x^2(x+r) \geq 0 \quad x \mid -r \quad 0 \quad 0 \quad 0 \quad D_y = [-r, +\infty)$$

$$ب) y = \sqrt{\frac{(x^2-1)(x^2-rx^2)}{x^2-1}} \quad \frac{(x^2-1)(x^2-rx^2)}{x^2-1} \geq 0 \quad D_y = (-\infty, -1] \cup [r, +\infty) \cup \{0\}$$

$$الف) y = \sqrt{|x-2| - x^2} \quad |x-2| - x^2 \geq 0 \rightarrow |x-2| \geq x^2 \rightarrow \begin{cases} x-2 \geq x^2 \\ x-2 \leq -x^2 \end{cases} \rightarrow \begin{cases} x \geq 2 \\ x \leq -1 \end{cases}$$

$$D_y = (-\infty, -1] \cup [2, +\infty)$$

$$ب) y = \sqrt{r - |x-2|} \quad r - |x-2| \geq 0 \rightarrow r \geq |x-2| \rightarrow r \geq x-2 \geq -r \rightarrow r \geq x \geq -r$$

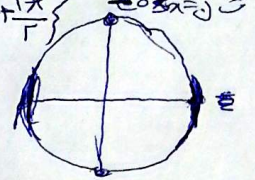
$$D_y = [-r, +r]$$

$$y = \sqrt{1-x|x|} \rightarrow |x|x| \geq 0 \rightarrow |x|x| \geq 0 \rightarrow x \geq 0 \rightarrow x^2 \geq 0 \rightarrow x \geq 0 \rightarrow x \in \mathbb{R}$$

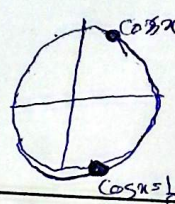
$$D_y = (-\infty, 1]$$

ب) $y = \frac{1}{\sqrt{1-|x-a|}}$ $\sqrt{1-|x-a|} > 0 \rightarrow 1-|x-a| > 0 \rightarrow 1-|x-a| > 0 \rightarrow |x-a| < 1$
 $D_y = (a-1, a+1)$

ا) $y = \frac{\sin^2 x - 1}{\cos x}$ $\cos x \neq 0 \rightarrow D_y = \mathbb{R} - \{k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2}\}$



ب) $y = \frac{\cos x}{\cos x - 1}$ $\cos x - 1 \neq 0 \rightarrow \cos x \neq 1 \rightarrow D_y = \mathbb{R} - \{k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2}\}$

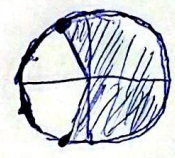


ا) $y = \frac{x+1}{|x+1| - |x-1|}$ $|x+1| - |x-1| \neq 0 \rightarrow x+1 \neq x-1 \rightarrow 1 \neq -1 \rightarrow$
 $D_y = \mathbb{R} - \{-\frac{1}{2}, \frac{1}{2}\}$

ب) $y = \sqrt{|x+1| - |x-1|}$ $|x+1| - |x-1| \geq 0 \rightarrow x+1 \geq x-1 \rightarrow 1 \geq -1 \rightarrow$
 $D_y = (-\infty, -\frac{1}{2}] \cup [\frac{1}{2}, +\infty)$

$f(x) = \sqrt{\log_{0.5} \log_{0.5} (x+1)}$ $\log_{0.5} (x+1) > 0 \rightarrow x+1 < 1 \rightarrow x < 0 \rightarrow$
 $(-\infty, 0) \cap (1, +\infty) \cap (1, +\infty) = (1, +\infty)$

ا) $y = \log(\cos x + 1)$ $\cos x > -1 \rightarrow \cos x > -1 \rightarrow$
 $D_y = \{k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2}\}$



ب) $y = \sqrt{\log \frac{x-1}{x+1}}$ $\frac{x-1}{x+1} > 0 \rightarrow x-1 > 0 \rightarrow x > 1 \rightarrow$
 $\log \frac{x-1}{x+1} > 0 \rightarrow \frac{x-1}{x+1} > 1 \rightarrow x-1 > x+1 \rightarrow -1 > 1 \rightarrow$
 $D_y = (-\infty, -1] \cup (1, +\infty)$