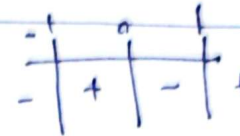
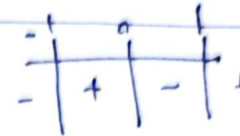
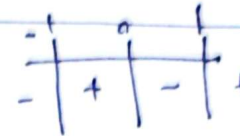
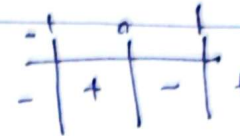


$y_1: \sqrt{\frac{r^2 a + r}{a+b}} + a \rightarrow D_F(r, +\infty) \rightarrow r+a \geq 0 \rightarrow a \geq -r$
 $\rightarrow a \geq -b \rightarrow -b \geq r \rightarrow b \geq -r \rightarrow y_1: \sqrt{\frac{1}{a-r}} \rightarrow \frac{1}{a-r} \geq 0$ (r)
 $\rightarrow a-r \geq 0 \rightarrow a \geq r$

الف) $y_1: \sqrt{a^2 - a} = \sqrt{a(a-1)(a+1)}$  (7) 
 $\rightarrow D_F = [-1, 0] \cup [1, +\infty)$ (r)

ب) $y_2: \frac{1}{\sqrt{|a|-1}}$ $\rightarrow |a|-1 > 0 \rightarrow |a| > 1 \rightarrow a > 1, a < -1$
 $\rightarrow D_F = (-\infty, -1) \cup (1, +\infty)$ (r)

ج) $y_2: \sqrt{\frac{1}{|a| - [a]}}$ $\rightarrow |a| \neq [a] \rightarrow a \notin \mathbb{Z} \leftarrow a \neq [a] \rightarrow a \notin \mathbb{Z}$ (8) 
 $D_F = \mathbb{R} - \{a | a = k, k \in \mathbb{Z}\}$ 
 $D_F = \mathbb{R} - \mathbb{N}$ (r)

د) $\sqrt{a} + \sqrt{2-a} \geq 1 \rightarrow \sqrt{2-a} \geq 1 - \sqrt{a}$
 $\rightarrow a \geq 0$ ①, $1 - \sqrt{a} \geq 0 \rightarrow a \leq 1$ } $\rightarrow [0, 1]$ (8) (r)

$y_2: \frac{1}{\sqrt{[ra - \frac{1}{r}] + [ra + \frac{r}{r}]}} = \frac{1}{\sqrt{[ra + \frac{1}{r}] + [ra + \frac{1}{r}]}} \rightarrow r[ra + \frac{1}{r}] > 0$ (9) (r)
 $\rightarrow [ra + \frac{1}{r}] \geq 1 \rightarrow ra + \frac{1}{r} \geq 1 \rightarrow ra \geq \frac{1}{r} \rightarrow a \geq \frac{1}{r}$
 $D_F = [\frac{1}{r}, +\infty)$ (r)

هـ) $y_2: \sqrt{1 - 1.9^{ra-a}} \rightarrow ra - a > 0 \rightarrow ra > a \rightarrow a > \frac{a}{r}$ (10) (r)
 $\rightarrow ra - a \leq 1 \rightarrow a \leq \frac{1+a}{r}$
 $\rightarrow a \in (\frac{a}{r}, \frac{1+a}{r}] \rightarrow \frac{1+a}{r} - \frac{a}{r} = \frac{1}{r} \in \mathbb{Q}$ (r)

(فهم فورييه)