

$$\text{a)} \quad xy^r + x^r + 1 = 0 \xrightarrow{\text{فرض}} \begin{cases} xy_1^r = -x^r + 1 \\ xy_r^r = -x^r + 1 \end{cases} \Rightarrow y_1^r = y_r^r \rightarrow y_1^r = y_r^r \quad \boxed{y_1 = y_r} \text{ تابع است } r$$

$$\text{ب)} \quad x^r + xy^r - rx - ry + 10 = 0 \xrightarrow{\text{فرض}} xy^r - rx + 9 = x^r - rx + 1 \rightarrow (xy + 3)^r = (x-1)^r \xrightarrow{\text{فرض}} y = -\frac{r}{x} \quad \text{تابع است } r$$

$$\text{a)} \quad x \sin y = y \sin x \xrightarrow{\text{فرض}} x = \frac{\pi}{r} \rightarrow \frac{\pi}{r} \sin y = 1 \times y \rightarrow \frac{\pi}{r} \sin y = y \quad \begin{cases} y = \frac{\pi}{r} \\ y = -\frac{\pi}{r} \end{cases} \quad x \subseteq \text{مربع}$$

$$\text{ب)} \quad \left(\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = r \right)^2 \rightarrow \frac{x}{y} + \frac{y}{x} + 2 = r^2 \rightarrow \frac{x^2 + y^2}{xy} = r^2 \rightarrow x^2 - r^2 xy + y^2 = 0 \rightarrow (x-y)^2 = 0 \rightarrow x = y$$

$\sqrt{\text{تابع است}} \leftarrow \text{مربع}$

$$\text{a)} \quad y = \sqrt{\frac{x-1}{x-4}} + \sqrt{\frac{4-x}{x}} \quad + \frac{1}{\frac{1}{0} - \frac{r}{0}} - \frac{0}{\frac{1}{0} - \frac{r}{0}} \quad \text{I} \quad \text{II} \quad \text{III} \quad \text{IV} \quad \text{V} \quad \text{VI} \quad \text{VII} \quad \text{VIII} \quad \text{IX} \quad \text{X} \quad \text{XI} \quad \text{XII}$$

$\text{I} \quad \text{II}$

$[\cap \text{II} \rightarrow D_y = (0, 1]$

$$\text{ب)} \quad \sqrt{x} + \sqrt{y-1} = \sqrt{r} \rightarrow (\sqrt{y-1} = \sqrt{r} - \sqrt{x})^2 \rightarrow y-1 = r + x - 2\sqrt{rx} \rightarrow y = x + r - 2\sqrt{rx}$$

$D_y = [0, +\infty)$

$$\text{a)} \quad y = \frac{\sqrt{x^2 - 7x + 4}}{\sqrt{x - 10x + 14}} \Rightarrow \frac{\sqrt{(x-1)(x-4)}}{\sqrt{-9x+14}} \rightarrow + \frac{1}{\frac{1}{0} - \frac{4}{0}} - \frac{0}{\frac{1}{0} - \frac{4}{0}} \quad \cap \Rightarrow D_y = (-\infty, 1]$$

$$\text{ب)} \quad y = \frac{\sqrt{x^2 - 7x + 4}}{\sqrt{x^2 - 10x + 14}} \Rightarrow \frac{\sqrt{(x-1)(x-4)}}{\sqrt{(x-2)(x-7)}} \rightarrow + \frac{1}{\frac{1}{0} - \frac{4}{0}} + \frac{1}{\frac{1}{0} - \frac{7}{0}} - \frac{0}{\frac{1}{0} - \frac{4}{0}} - \frac{0}{\frac{1}{0} - \frac{7}{0}} \quad D_y = (-\infty, 1] \cup (2, 4] \cup (7, +\infty)$$

$$\text{a)} \quad y = \frac{\sqrt{x^2 - 2x + 3}}{\sqrt{3x^2 - 7x + 4}} = \frac{\sqrt{(x-1)(x-2)}}{\sqrt{(3x-1)(x-4)}} \rightarrow + \frac{1}{\frac{1}{0} - \frac{2}{0}} - \frac{0}{\frac{1}{0} - \frac{2}{0}} + \frac{1}{\frac{1}{0} - \frac{4}{0}} - \frac{0}{\frac{1}{0} - \frac{4}{0}} \quad \cap \rightarrow D_y = (-\infty, 1) \cup \left[\frac{r}{r}, +\infty \right)$$

$a+b+c=0 \quad \begin{cases} x=1 \\ x=\frac{c}{a} \end{cases}$

$$\text{ب)} \quad y = \frac{\sqrt{x^2 - 2x + 3}}{\sqrt{3x^2 - 7x + 4}} = \frac{\sqrt{(x-1)(x-2)}}{\sqrt{(3x-1)(x-4)}} \rightarrow + \frac{1}{\frac{1}{0} - \frac{2}{0}} + \frac{1}{\frac{1}{0} - \frac{4}{0}} - \frac{0}{\frac{1}{0} - \frac{2}{0}} - \frac{0}{\frac{1}{0} - \frac{4}{0}} \quad D_y = (-\infty, 1) \cup \left(1, \frac{r}{r} \right) \cup \left[\frac{r}{r}, +\infty \right)$$