

یاما طرکتی قدامیر A قلفا

$$(1) \text{ بام } \vec{r} = y_1 \vec{e}_1 + y_2 \vec{e}_2 \Rightarrow y_1^2 + y_2^2 = r^2 \quad \text{اندا}$$

$$2) x \cos y = y \cos x \Rightarrow \frac{x}{r} \cos y = \frac{y}{r} \cos x$$

$$\Rightarrow y = \frac{x}{r}, \frac{r}{x} \Rightarrow \text{بام } \vec{r} = \frac{x}{r} \vec{e}_1 + \frac{r}{x} \vec{e}_2$$

$$3) \frac{x+y}{r}, \sqrt{xy} \Rightarrow x^2 + y^2 = 2xy \Rightarrow x^2 - 2xy + y^2 = 0$$

$$\Rightarrow (x-y)^2 = 0 \Rightarrow x = y \Rightarrow \text{بام } \vec{r} = x \vec{e}_1 + x \vec{e}_2$$

$$4) x^2 + y^2 = 2xy \Rightarrow (x-y)^2 = 0 \Rightarrow (x-y)(x+y) = 0$$

$$\Rightarrow (x+y) > 0 \Rightarrow x = y \Rightarrow \text{بام } \vec{r} = x \vec{e}_1 + x \vec{e}_2$$

$$f(x) = \begin{cases} x^2 - 1 & |x| \geq 2 \\ x^2 - 1 & -1 \leq x \leq 1 \end{cases}$$

$$\Rightarrow x-1 \geq 2 \Rightarrow x \geq 3 \quad | \quad x-1 \leq -2 \Rightarrow x \leq -1$$

$$\Rightarrow f(-1) = r(-1)^r - b \cdot a + r(-1) \Rightarrow r - b + a - r$$

$$\Rightarrow a - b = 0$$

$$f(x) = \sqrt{a - bx - x^r} \Rightarrow D_f = [b, a]$$

$$\Rightarrow -x^r - bx + a \geq 0 \Rightarrow x^r + bx - a \leq 0$$

$$\Rightarrow \vec{x} = x = a + b \Rightarrow -\frac{b}{a} \Rightarrow a + b = -b$$

$$\Rightarrow \vec{x} = x = ab \leq \frac{c}{a} = 1 \quad \begin{matrix} ab = -a \\ a = -r \cdot b \\ b = -1 \end{matrix}$$

$$\Rightarrow a = 1 \Rightarrow D_f = [-1, 1]$$

$$3 \quad \text{اذا } \int \frac{1}{\ln|-\alpha|} \rightarrow \ln|\alpha| \neq 0$$

فخرج مني كدود سنشده

$$\Rightarrow \rho f = \ln - \ln \Rightarrow \rho f = \ln - \ln$$

$$\Rightarrow \ln \geq \ln \Rightarrow \ln \geq \ln \Rightarrow \ln \geq \ln$$

$$\Rightarrow \ln \geq \ln \Rightarrow \rho f = [\ln, \ln]$$

$$4 \quad \text{اذا } f(x) = \sqrt{\ln \frac{x-1}{x}} \quad x > 1, x \neq 0$$

$$\ln \frac{x-1}{x} \geq 0 \Rightarrow x \geq \frac{1}{e}$$

$$5 \quad \text{ب) } f(x) = \ln \frac{1}{4 + \sqrt{x} - x}$$

$$\Rightarrow 4 + \sqrt{x} - x > 0 \Rightarrow x - \sqrt{x} - 4 < 0$$

$$\Rightarrow (\sqrt{x} - 4)(\sqrt{x} + 4) < 0 \Rightarrow \frac{4}{\sqrt{x} - 4} < 0$$

$$P_f(-a, a) \Rightarrow x \in (-a, a) \Rightarrow |x| < a$$

$$y = \sqrt{\frac{f(x)}{x+b}} \Rightarrow Dy \in [f(x)] \quad \text{---}$$

$$\frac{f(x)}{x+b} \geq 0 \quad x+b \neq 0 \Rightarrow x \neq -b$$

$$\Rightarrow x \neq -b \Rightarrow b \neq -x$$

$$y = \sqrt{f(x) - x+1} \quad f(x) \begin{cases} x-1 & [x] \geq 0 \\ x+1 & [x] \leq -1 \end{cases} \quad \begin{matrix} \rightarrow x \geq 0 \\ -1 \end{matrix}$$

$$x \geq 0 \Rightarrow y = \sqrt{x-1-x+1} = \sqrt{x} \Rightarrow x \geq 0$$

$$x \leq -1 \Rightarrow y = \sqrt{x+1-x+1} = \sqrt{x+2} \Rightarrow x \geq -\frac{3}{2}$$

$$\Rightarrow Dy \in [-\frac{3}{2}, \infty)$$

$$y = \frac{f(x) + 1}{(x+1)^2} \Rightarrow \frac{f(x+1)^2}{(x+1)^4} \quad \text{---}$$

$$\Rightarrow \frac{f}{x+1} \Rightarrow x+1 \neq 0 \Rightarrow Dy \in \mathbb{R} \setminus \{-\frac{1}{2}\}$$

$$y = \sqrt{1 - \log(x-a)} \Rightarrow x-a > 0 \Rightarrow x > \frac{a}{r} \quad \cdot$$

$$1 - \log(x-a) > 0 \Rightarrow$$

$$\Rightarrow \log(x-a) \leq 1 \Rightarrow x-a \leq 10$$

$$\hookrightarrow x \leq b + a$$

$$\hookrightarrow x \leq b + \frac{a}{r}$$

$$\Rightarrow D_f = \left(\frac{a}{r}, b + \frac{a}{r} \right) = (b, c)$$

$$b = \frac{a}{r} \Rightarrow c = b + \frac{a}{r}$$

$$\Rightarrow (c-b) = b + \frac{a}{r} - \frac{a}{r} = b$$