

$$x^2 + y^2 - 4x + 4y + k = 0$$

$$(\sqrt{x} - \sqrt{y})^2 + (y + x)^2 = 0$$

$$9 + 2 = 11$$

$$k = 11$$

$$x^2 + y^2 - 4x + 4y + k = 0$$

(4)

$$f(x) = \begin{cases} x^2 + 4x & ; x \geq a \\ x^2 + a + 4 & ; x < a \end{cases}$$

$$x^2 + 4x = x^2 + a + 4$$

$$x^2 + a + 4 = 0$$

(2)

$$f(1) = 1 + 4 = 5$$

$$f(x) = \begin{cases} x^2 - b & ; |x+1| \geq 2 \\ a + x & ; |x+1| < 2 \end{cases}$$

$$x^2 - b = a + x$$

$$x^2 - b = a + x$$

(1, 5)

بجای ب

$$y = \sqrt{4x - a} + \sqrt{b - x^2}$$

$$\sqrt{4x - a} + \sqrt{b - x^2}$$

$$b = 9$$

$$a = 12$$

$$y =$$

$$\frac{y}{x} = \frac{1}{x}$$

(2)

$$y = \sqrt{\frac{x+1}{|x-1|}} + \sqrt{\frac{y-x}{x^2 + x + 1}}$$

$$-1 \leq \frac{x}{x^2 + x + 1} \leq 1$$

(4)

$$[-1, 1] = \{x\}$$

$$-1 \leq \frac{x}{x^2 + x + 1} \leq 1$$

$$x^2 + x + 1$$

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$$-1 \leq \frac{x}{x^2 + x + 1} \leq 1$$

$$x^2 + x + 1$$

$$y = \sqrt{[a] - x} + \sqrt{x - [a]}$$

$$x^2 + x + 1$$

$$x^2 + x + 1$$

✓

$$1) y = \frac{x^2 - x - 4}{x^2 - 1}$$

$$(x-1)(x+1)$$

$$\frac{x^2 - x - 4}{x^2 - 1}$$

4

$$x^2 = 1 \quad x^2 - 1 = (x-1)(x+1)$$

$$(x-1)(x-1) \Rightarrow x = 1$$

$$Df = (-\infty, -1) \cup (1, 1) \cup (1, +\infty)$$

$$y = \frac{x^2 - x - 4}{x^2 + x - 4}$$

$$\frac{1}{1} \frac{-1}{-1} \frac{-4}{-4} \frac{4}{0}$$

$$1, VA$$

$$\frac{x^2 - x - 1}{x^2 + x - 4}$$

$$\frac{1}{1} \frac{1}{+1} \frac{-1}{-1} \frac{-4}{0}$$

$$(x-1)(x+1)$$

$$Df = (-\infty, -1) \cup (-1, 1) \cup (1, +\infty)$$

$$y = \sqrt{x-1}$$

$$\frac{x^2 - x}{x^2 + x - 4}$$

$$\frac{x^2 - x}{x^2 + x - 4}$$

4

$$Df = (-\infty, -1) \cup (1, +\infty)$$

$$2$$

$$y = \frac{x^2 - 1}{x^2 - 1}$$

$$[a]^2 - 1 [a]^2 - 1$$

$$x^2 - 1 = (x-1)(x+1)$$

$$\frac{1}{1} \frac{0}{0} \frac{1}{1} \frac{1}{1}$$

$$(x-1)(x+1)$$

$$\frac{x^2 - 1}{x^2 - 1}$$

$$Df = (-\infty, -1) \cup (1, +\infty)$$

$$(x-1)(x+1)$$

$$y = \frac{\cot x + 1}{\tan x + 1}$$

$$\sin x \neq 0$$

$$\cos x \neq 0$$

$$4$$

$$Df = R - \left\{ \frac{KM}{V}, KM - \frac{M}{F} \right\}$$

Subo

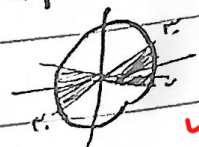
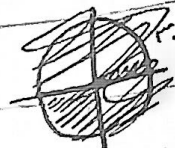
$$\rightarrow \sqrt{1 - \epsilon \sin^2 \alpha}$$

$$1 - \epsilon \sin^2 \alpha$$

$$1 - \epsilon \sin^2 \alpha$$

$$\frac{1}{\epsilon} \sin^2 \alpha$$

$$\frac{1}{\epsilon} \sin^2 \alpha \geq -\frac{1}{\epsilon}$$



$$Df = \left\{ KM - \frac{M}{\epsilon}, KM + \frac{M}{\epsilon} \right\}$$

$$y = \sqrt{1 - \log \frac{\alpha-1}{r}}$$

$$\alpha-1 > 0$$

$$\alpha > 1$$

$$1 - \log \frac{\alpha-1}{r}$$

$$1 - \log \frac{\alpha-1}{r}$$

$$\left(\frac{r}{\alpha} + \infty \right) \checkmark$$

$$\frac{1}{r} \leq \alpha-1 \quad \frac{r}{\alpha} \leq \alpha$$

$$y = \frac{\sqrt{\alpha^r - \alpha}}{1 - \log \frac{\alpha^r - \alpha}{f}}$$

$$\alpha(\alpha-1)$$

$$\frac{\alpha^r - \alpha}{\alpha^r - \alpha}$$

$$\frac{\alpha^r - \alpha}{\alpha^r - \alpha}$$

$$\frac{\alpha^r - \alpha}{\alpha^r - \alpha}$$

$$\frac{\alpha^r - \alpha}{\alpha^r - \alpha}$$

$$1 - \log \frac{\alpha^r - \alpha}{f}$$

$$Df = (-\infty, -1) \cup (-1, 0) \cup (0, f) \cup (f, +\infty)$$

$$f \neq \alpha^r - \alpha$$

$$\alpha^r - \alpha - f \neq 0$$

$$\frac{(\alpha-f)(\alpha+1)}{f}$$

$$y = \sqrt{\epsilon \alpha^r - \alpha}$$

$$\epsilon \alpha^r - \alpha$$

$$\epsilon \alpha^r - \alpha$$

$$1, r$$

$$[1, r] \checkmark$$

$$\frac{1}{f} + \frac{r}{\alpha}$$

$$\left(\frac{r\alpha + \alpha}{r\alpha + f} \right)! \Rightarrow \frac{r\alpha + \alpha}{r\alpha + f} \in W$$

$$\alpha = \frac{fW - \alpha}{rW - r} \Rightarrow \alpha = \frac{\alpha - fW}{rW - r}$$

$$Df = \left\{ \alpha \mid \alpha = \frac{\alpha - fK}{rK - r}, K \in W \right\} \checkmark$$

Subo