

19, 20

نام و نام خانوادگی: کلاس: پاسخنامه تشریحی تکلیف شماره: ۲

$$x^2 + y^2 - 4x + 4y + k = 0 \quad k = t + 2$$

$$(x^2 - 4x + t) + (y^2 + 4y + 2) = 0 \quad k = t + 2 = 9 + 2 = 11$$

تقریباً

$\Delta = 0$
 $14 - 4(1)(t) = 0 \Rightarrow t = 3.5$
 $\Delta = 0$
 $14 - 4(2) = 0 \Rightarrow 2 = 9$

$(x^2 - 4x + 4)(y^2 + 4y + 4) = 0$
 $(x-2)^2 (y+2)^2 = 0$
 $x=2, y=-2$

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

در $x=a$ پیوسته

$$a^2 + 2a = a^2 + a + 2 \Rightarrow a = 2$$

$$f(1) = (1)^2 + 2(1) = 3$$

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

مردود باشد $x = -2$ یا $x = -4$

$$2(-2)^2 - b = a + 2(-2)$$

$$18 - b = a - 4$$

$$12 = a + b \Rightarrow a + b = 12$$

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

$$\frac{a}{4} = \frac{b}{2} \Rightarrow \frac{b}{a} = \frac{2}{4} = \frac{1}{2}$$

از اینجا که $x \geq \frac{a}{4}$ و $x \leq \frac{b}{2}$ پس $\frac{a}{4} \leq \frac{b}{2}$

$$y = \sqrt{x+1} + \sqrt{4-x}$$

$I \cap II = D: [-1, 4] - \{2\}$

$I \cap II = D: \emptyset$

(b) $y = \sqrt{\frac{x^2 - x - 4}{x^2 - 10x + 9}}$ $x \rightarrow t$

$\frac{(x-7)(x+1)}{t^2 - 11t + 9} \cdot \frac{(x-9)(x+1)}{(t-9)(t-1)} \geq 0$

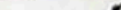
$\infty \Rightarrow -\infty, 7, -1, 9$ ✓ $t=9$, $t=1$

$\frac{1}{x^2-1} = \frac{1}{(x-1)(x+1)}$
 $\frac{1}{x^2-1} = \frac{A}{x-1} + \frac{B}{x+1}$
 $1 = A(x+1) + B(x-1)$
 $1 = Ax + A + Bx - B$
 $1 = (A+B)x + (A-B)$
 $0 = A+B$
 $1 = A-B$
 $A = -\frac{1}{2}$
 $B = \frac{1}{2}$
 $\frac{1}{x^2-1} = \frac{-\frac{1}{2}}{x-1} + \frac{\frac{1}{2}}{x+1}$
 $\frac{1}{x^2-1} = \frac{-1}{2(x-1)} + \frac{1}{2(x+1)}$

$$y\sqrt{-x} - 2$$

$$\therefore y = \frac{x^2 + 4}{x^2 - x - 4} \quad \begin{array}{l} [x]^2 - x - 4 \neq 0 \quad [x] \neq 4 \\ ([x] - 4)([x] + 1) \neq 0 \quad [x] \neq -1 \end{array}$$

$$D: \mathbb{R} = [K, K) \cup [1, \infty)$$

الف $y = \frac{\cot x + 1}{\tan x + 1}$ $\cos x \neq 0$ $\sin x \neq 0$
 $\tan x \neq -1$  $D: \mathbb{R} - \left\{ \frac{3\pi}{4}, \frac{7\pi}{4} \right\}$

$y = \sqrt{1 - k \sin^2 x}$ $1 - k \sin^2 x \geq 0$
 $\sin^2 x \leq \frac{1}{k}$
 $-\frac{1}{\sqrt{k}} \leq \sin x \leq \frac{1}{\sqrt{k}}$


 $D: [k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4}]$

الف $\sqrt{1 - \log_{\frac{1}{4}} x - 1}$ $x - 1 > 0$ $x > 0$ $1 - \log_{\frac{1}{4}} x - 1 \geq 0$ * $D: [\frac{1}{4}, +\infty)$

$$\frac{\sqrt{x^2 - n}}{1 - \log \frac{x^2 - n}{\epsilon}} \quad x^2 - n \geq 0 \quad \frac{0}{+ - +} \quad x^2 - n > 0 \quad \frac{0}{+ - +}$$

$$*D_1(-, \circ) \cup (y, +\infty) = \{x, -1\} \quad \begin{matrix} x^2 - x - \varepsilon \neq 0 \\ (x-x)(x+1) \neq 0 \end{matrix} \quad x \neq x, x \neq -1$$

الف $y = \sqrt{\mu_{\text{Kant}}^2 - 1}$ $\mu_{\text{Kant}} - \mu \geq 0$ $-\mu + \mu_{\text{Kant}} \geq 0$ $\begin{matrix} - & + & - \end{matrix}$

* D: [1, 4]

$$\hookrightarrow y = \left(\frac{r_{2+\omega}}{r_{2+\kappa}} \right)! \quad \frac{r_{2+\omega}}{r_{2+\kappa}} \leftarrow \omega \quad x = - \frac{\omega - \alpha}{r_{\omega - \psi}}$$

$$* D_1 \{ \pi | \pi = \frac{-rk + \omega}{rk - r}, k \in \omega \}$$

سوال ۶- مورد ب)

$$\begin{array}{ccccccc} 3 & 2 & 1 & 1 & 2 & 3 \\ + & - & + & - & + & - & + \\ \hline 1 & 1 & 1 & 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 & 1 & 1 & 1 \\ \hline 1 & 1 & 1 & 1 & 1 & 1 & 1 \end{array}$$