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طالع‌میرزا، دانش‌پرس - تالیف

$$\frac{x+3}{2x^2+3x^2-8x+3} \rightarrow 2x^2+3x^2-8x+3 \neq 0 \rightarrow (x-1)(2x^2+5x-3) \neq 0$$

$$(x-1)(2x-1)(x+3)$$

$$R_1 = \left\{1, \frac{1}{2}, -3\right\} \checkmark$$

$$\frac{x+3}{2x^2+9x^2+1 \cdot x+3} \rightarrow 2x^2+9x^2+1 \cdot x+3 \neq 0 \rightarrow (x+1)(2x^2+7x+3) \neq 0$$

-3	-1	-∞
-	+	-
0	0	0

$$R_1 = \{-3, -1, -\infty\} \checkmark$$

$$\frac{x+3}{x^2-2x^2+2x-1} \rightarrow x^2-2x^2+2x-1 \neq 0 \rightarrow (x-1)(x^2-x+1) \neq 0$$

$\downarrow$ $\Delta < 0$
 حله‌ای نیست

$$Df = R_1 - \{1\} \checkmark$$

$$\sqrt{\frac{x+3}{x^2-2x^2+2x-1}} \geq 0 \rightarrow \frac{x+3}{(x-1)(x^2-x+1)}$$

-3	1	∞
x+3	-	+
(x-1)(x^2-x+1)	-	+
+	-	+

$$Df = (-\infty, -3] \cup (1, +\infty) \checkmark$$

$$\frac{r}{x^2-2|x-1|-2x+2}$$

$\frac{r}{x^2+3x} = \frac{r}{x(x+3)}$	$\frac{r}{(x-2)(x-2)}$
$\frac{0}{-} \leftarrow 0, -3$	$r, 2 \rightarrow \frac{0}{-}$
$x < 1$	$x > 1$

$$Df = R_1 - \{-2, 0, 2, r\} \checkmark$$

Parsian

$$\frac{x+r}{|rx+1|-|x+r|} \rightarrow |rx+1|-|x+r| \neq 0 \rightarrow x < -r \rightarrow -x+r \rightarrow \emptyset - \varepsilon$$

$$\frac{-1}{r} \leftarrow \quad \rightarrow -r \rightarrow -r < x < -\frac{1}{r} \rightarrow -rx - \varepsilon \rightarrow x \neq -\frac{\varepsilon}{r}$$

$$x > -\frac{1}{r} \rightarrow x-r \neq 0 \rightarrow x \neq r$$

$$Df = \mathbb{R} - \left\{ -\frac{\varepsilon}{r}, r \right\} \quad \checkmark$$

$$\sqrt{|rx+1|-|x+r|} \rightarrow |rx+1|-|x+r| \geq 0 \rightarrow |rx+1| \geq |x+r|$$

$$rx^2+1-rx \geq x^2+r-x \rightarrow rx^2+rx-1 \geq 0 \rightarrow (x-r)(rx+1) \geq 0$$

$$\Rightarrow Df = \mathbb{R} - \left(-\frac{\varepsilon}{r}, r \right) \quad \checkmark$$

$$\log_r (1 - \log_r x) \rightarrow \begin{matrix} \text{I} & & \text{II} & & -\infty \\ x > 0, & 1 - \log_r x > 0 & \rightarrow \log_r x < 1 & \rightarrow x < r & \rightarrow 0 < x < r \end{matrix} \quad \checkmark$$

$$\log_r (1 - \log_{\frac{1}{r}} x) \rightarrow \begin{matrix} \text{I} & & \text{II} \\ x > 0, & 1 - \log_{\frac{1}{r}} x > 0 & \rightarrow \log_{\frac{1}{r}} x < 1 & \rightarrow x > \frac{1}{r} \end{matrix}$$

$$Df = \left(\frac{1}{r}, +\infty \right) \quad \checkmark$$

$$\sqrt{\log_a (rx-1)} \rightarrow rx-1 > 0 \rightarrow rx > 1 \rightarrow x > \frac{1}{r} \quad \text{I}$$

$$\log_a^{rx-1} > 0 \rightarrow rx-1 > 1 \rightarrow x > 1 \quad \text{II}$$

$$\log_a^{\log_a^{rx-1}} \geq 0 \rightarrow \log_a^{rx-1} \geq 1 \rightarrow rx-1 \leq a$$

$$rx \leq a+1$$

$$x \leq \frac{a+1}{r} \quad \text{III}$$

$$Df = \text{I} \cap \text{II} \cap \text{III} = (1, r] \quad \checkmark$$

$$\log(r \cos x + 1) \rightarrow r \cos x + 1 > 0 \rightarrow \cos x > -\frac{1}{r} \quad \checkmark$$

$$Df = (rk\pi - \frac{\pi}{r}, rk\pi + \frac{\pi}{r}) \quad \checkmark$$

$$\sqrt{\log \frac{x-1}{x+1}} \rightarrow \frac{x-1}{x+1} > 0 \rightarrow R_1 = [-1, 1] \quad \text{I} \quad \log \frac{x-1}{x+1} \geq 0 \rightarrow \frac{x-1}{x+1} \geq 1 \quad \text{II}$$

$$I \cap II = (-\infty, -1)$$

$$\frac{x-1-x-1}{x+1} \geq 0 \rightarrow \frac{-2}{x+1} \geq 0 \rightarrow x < -1 \quad \text{II} \quad \checkmark$$

$$\sqrt{(a+r)x^2+ax+b} \rightarrow a = -r \quad \checkmark \quad -rx+b \geq 0 \rightarrow x \leq \frac{+b}{r} \rightarrow \frac{+b}{r} = r \quad \text{II} \quad \checkmark$$

$$\Rightarrow b = +r \quad \checkmark$$

$$\sqrt{x^2+rx+r-m^2} \rightarrow x^2+rx+r-m^2 \geq 0 \rightarrow \Delta \leq 0 \rightarrow r-4+r m^2 \leq 0 \quad \text{I}$$

$$|1 - (-1)| = 2 \quad \checkmark$$

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

$$m^2-1 \leq 0 \quad \text{II} \quad (m-1)(m+1) \leq 0 \quad \checkmark$$

$$\sqrt{r-x^2} \rightarrow r-x^2 \geq 0 \rightarrow x^2 \leq r \rightarrow -r \leq x \leq r \quad \text{I} \quad \checkmark$$

$$\frac{[x] + [-x] + 1}{1} \neq 0 \rightarrow 1 \quad \text{II} \quad \checkmark$$

داخل حوزة

$$(-1)$$

$$I \cap II = \{-2, -1, 0, 1, 2\} \quad \checkmark$$

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