

$$RP: [r, \infty)$$

محدوده مدی

(۲)

$$-\sin x + \log y - r = 0 \Rightarrow \log y = r + \sin x \Rightarrow y = 10^{r + \sin x} \Rightarrow 10^r \leq y \leq 10^{r+1}$$

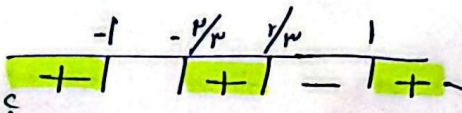
$$g = \sqrt{\frac{x^2 - 1}{x^2 - 9}} \Rightarrow f(x)^{-1} = x = \sqrt{\frac{y^2 - 9}{y^2 - 1}} \Rightarrow x^2 = \frac{y^2 - 9}{y^2 - 1}$$

$$\Rightarrow y^2 = \frac{9x^2 - 9}{x^2 - 1} \Rightarrow y = \sqrt{\frac{9x^2 - 9}{x^2 - 1}}$$

می دانیم که چون تابع دایره تابع معکوس

است

$$\frac{9x^2 - 9}{x^2 - 1} \geq 0 \Rightarrow \frac{(3x-3)(3x+3)}{(x-1)(x+1)} \geq 0$$



دایره تابع معکوس - جدول تابع (a, b, c) است - دلیل که جدول تابع اصلی منفی باشد

$$a+b+c = 0 + 3/2 + 1 = 5/2 \checkmark$$

$$x + 1/x + 2\sqrt{x + 1/x} + 1 - 1 \Rightarrow (\sqrt{x + 1/x} + 1)^2 - 1 \quad RP: y \geq r + 2\sqrt{r}$$

$$\Rightarrow x > 0 \Rightarrow x + 1/x \geq 2 \Rightarrow \sqrt{x + 1/x} \geq \sqrt{2} \Rightarrow (\sqrt{x + 1/x} + 1)^2 \geq r + 2\sqrt{r} \Rightarrow (\sqrt{r} + 1)^2 = r + 2\sqrt{r}$$

$$(3 - \sin)(1 + \sin) = 3 + 3\sin - \sin - \sin^2 = -\sin^2 + 2\sin + 3 = 0$$

ب-۳

$$-\sin^2 + 2\sin + 3 \begin{cases} \sin = -1/2 & -1/2 - 1 = -3/2 \neq 1 \\ \sin = 1 & 1 - 1 = 0 \\ \sin = -1 & -1 - 1 = -2 \neq 0 \end{cases}$$

$$\Rightarrow RP: [0, 2]$$

$$f(x) = \sqrt{ax^2 + bx + c} \Rightarrow a = 0, \quad 2b + c = 0$$

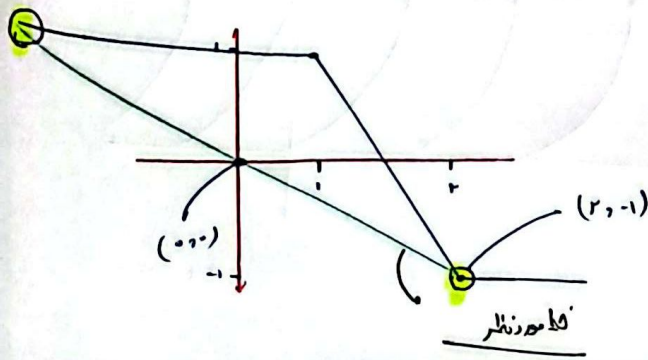
$$b^2 - 4ac = b^2 = 1 \Rightarrow b = 1, \quad c = -2$$

$$g(x) = \sqrt{x^2 + 2} \Rightarrow RP: [2, +\infty)$$

سوال ۴ نوشته نشده است - صفر

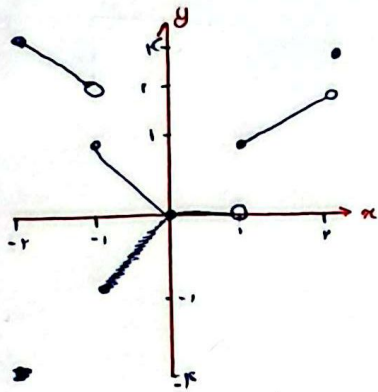
مسئله ۴

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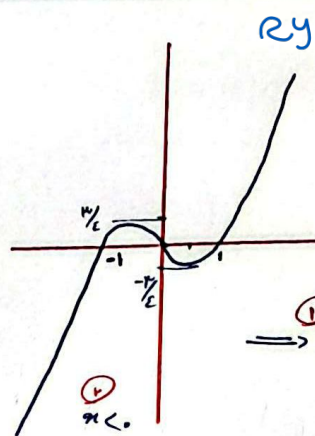


$$m = k = \frac{\Delta y}{\Delta x} = \frac{-1 - 0}{2 - 0} = -\frac{1}{2}$$

نشیب خط k و m همان است.



$$Ry = [0, 2] - \{0\}$$



$$Ry = [-0.25, 1]$$

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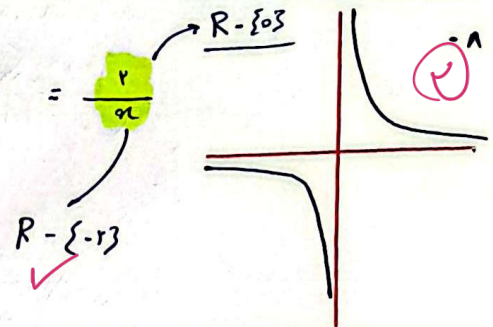
بازه‌های انباشتگی به صورت $x > 0$ و $x < 0$

$$\Rightarrow x > 0 \Rightarrow x^2 - x$$

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

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

$a+b = 0 + (-1) = -1$



$$\frac{(\sqrt{x}-1)(\sqrt{x}-2)}{(\sqrt{x}-1)(\sqrt{x}-1)} = \frac{\sqrt{x}-2}{\sqrt{x}-1}$$

$$\Rightarrow \frac{\sqrt{x}-2}{\sqrt{x}-1}$$

$$Rf(-\infty, 1) \cup (2, +\infty)$$

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

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

$$= x+r$$

$R \neq -1 + r = 1$
 $R \neq 1 + r = 2$

$$1+r \in F$$

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