

$$RP: [0, \pi]$$

میدان تابع معکوس

-1

$$-\sin x + \log y - r = 0 \Rightarrow \log y = 1 + \sin x \Rightarrow y = 10^{1 + \sin x} \Rightarrow 10^1 \leq y \leq 10^2$$

$$g = \sqrt{\frac{x^2 - 1}{x^2 - 4}} \Rightarrow f(x)^{-1} = x = \sqrt{\frac{y^2 - 4}{y^2 - 1}} \Rightarrow x^2 = \frac{y^2 - 4}{y^2 - 1}$$

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

میدان تابع معکوس

$$\frac{4x^2 - 4}{x^2 - 1} \geq 0 \Rightarrow \frac{(2x-2)(2x+2)}{(x-1)(x+1)} \geq 0$$

دانش تابع معکوس - جدول علامت

-1	-2/3	2/3	1
+	-	+	-

نتیجه باشد در تمام - های مثبتی می شود

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

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

$$\Rightarrow (\sqrt{x + 1/x} + 1)^2 \geq 2 + 2\sqrt{2} \Rightarrow \sqrt{x + 1/x} \geq \sqrt{2}$$

$$\Rightarrow (\sqrt{x + 1/x} + 1)^2 - 1 \geq 2 + 2\sqrt{2}$$

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

-2

$$-\sin^2 + 2\sin + 3 = 0 \Rightarrow \sin = -1/2 \quad -1/2 - 1 = -3/2 \quad -1 + 2 + 3 = 4$$

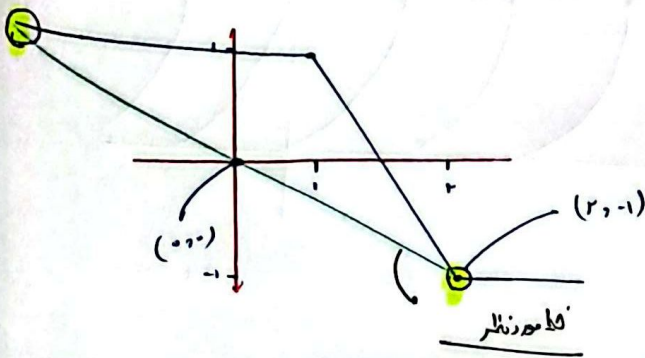
$$\Rightarrow RP: (0, 4)$$

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

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

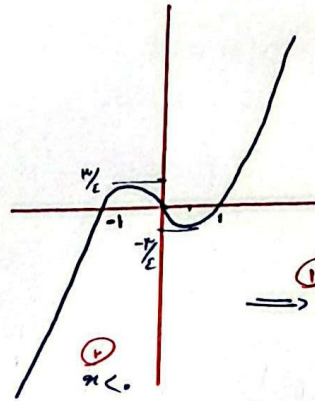
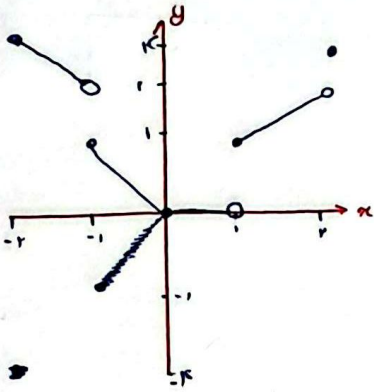
-3

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



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

نسبت خط k و m همان است، k است.

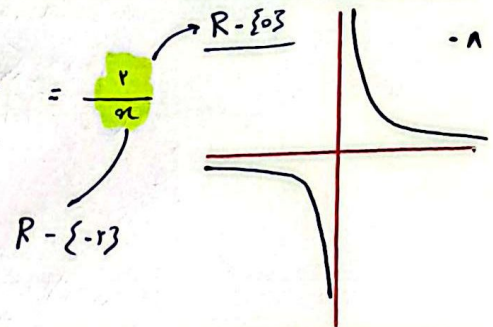


بازه‌های افزایش و کاهش: $x > 0 \Rightarrow x^2 - x$

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

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

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



$$\frac{(\sqrt{x}-1)(\sqrt{x}-2)}{(\sqrt{x}-1)(\sqrt{x}-1)} = \frac{\sqrt{x}-2}{\sqrt{x}-1} \Rightarrow \mathbb{R} \setminus (-\infty, 1) \cup (2, +\infty)$$

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

$x \neq -1, 1$

$R \neq -1+2=1$

$R \neq 1+2=3$

$$1+3 \in F$$

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