

14, 50

امتحان: یازدهم، هفتاد و پنج

نوع: تکلیف: 4

نام و نام خانوادگی: سارینا رازخواه

بد قیاس برابر به روش اولی هست آید.

$$الف) y = x^3 - 3x^2 + 3x \Rightarrow y = (x-1)^3$$

$$\Rightarrow \sqrt[3]{y} = (x-1) \Rightarrow x = \sqrt[3]{y} + 1 \Rightarrow R_f = \mathbb{R}$$

ب) $y = \frac{1}{x^2 - 2x} \Rightarrow yx^2 - 2xy = 1 \Rightarrow yx^2 - 2xy - 1 = 0 \Rightarrow \Delta = (-2y)^2 - 4(y)(-1) = 4y^2 + 4y = 4y(y+1)$

$$R_f = (-\infty, -1] \cup [0, +\infty)$$

بد قیاس نه با قیاس به این قیاس هم در هشت دست آید.

$$الف) y = x^2 - 4x + 10 \quad \min \left| \frac{y}{x} = \frac{x}{y} = 1 \right| \quad R_f = [4, +\infty)$$

$$ب) y = -x^2 + 4x + 10 \quad \max \left| \frac{y}{x} = \frac{x}{y} = 1 \right| \quad R_f = (-\infty, 12]$$

$$ج) y = \sqrt{x^2 - 4x - 1} \quad \min \left| \frac{y}{x} = \frac{x}{y} = 1 \right| \quad R_f = [0, +\infty)$$

$$د) y = \sqrt{4x - x^2} \quad \max \left| \frac{y}{x} = \frac{x}{y} = 1 \right| \quad R_f = [0, 4]$$

بد قیاس ؟

$$الف) y = x^3 - 3x^2 + 3x + 1 \quad \mathbb{R}$$

$$ب) y = x^4 - 4x^3 + 6x^2 + 1 \quad \mathbb{R}$$

$$ج) y = \sqrt{x^4 - 4x^3 + 6x^2 + 1} \rightarrow \sqrt{1} \rightarrow [0, +\infty)$$

$$د) y = (x^3 - 4x^2 + 6x + 1)^3 \quad \mathbb{R} \quad [1, +\infty)$$

بد قیاس نه ؟ (ad ≠ bc)

$$الف) y = \frac{3x+1}{x-2} \Rightarrow \mathbb{R} - \left\{ \frac{1}{3} \right\} \Rightarrow \mathbb{R} - \left\{ \frac{1}{3} \right\}$$

$$ب) y = \frac{3x+1}{x+1} \Rightarrow \mathbb{R} - \left\{ \frac{1}{3} \right\}$$

بد قیاس نه با روش اولی ؟

$$الف) y = \sqrt{\frac{3x+1}{x+1}} \Rightarrow \sqrt{\mathbb{R} - \left\{ \frac{1}{3} \right\}} \rightarrow [0, +\infty)$$

$$R = [1, +\infty) - \left\{ \sqrt{\frac{1}{3}} \right\}$$

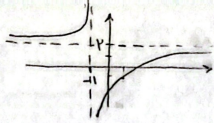
ب) $y = \sqrt{\frac{3x+1}{x-2}} \quad (ad \neq bc) \Rightarrow \sqrt{\mathbb{R} - \left\{ \frac{1}{3} \right\}} \rightarrow [0, +\infty) - \left\{ \sqrt{\frac{1}{3}} \right\}$

$$R = [1, +\infty)$$

هذا قاع غير ؟ (جانبها فقط مستقيم منحنى)

الف) $y = \frac{x^2 - 1}{x + 1}$

$\rightarrow$ جانب قاع = -1
 $\rightarrow$ جانب انحنى = $\frac{9}{2} = (P)$

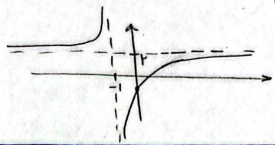


$f(1) = -1$

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ب) $y = \frac{x^2 - 1}{x + 1}$

$\rightarrow$ جانب قاع $\rightarrow -1$ $f(0) = -1$
 $\rightarrow$ قاع $\Rightarrow (P)$



الف) $y = \sin x + \frac{1}{\sin x} \rightarrow -1 < \sin x < 1 \rightarrow (-\infty, -1] \cup [1, +\infty) \Rightarrow Rf$

9 بد

ب) $y = \frac{x^4 + 1}{x^2} = x^2 + \frac{1}{x^2} \rightarrow x^2 > 0 \rightarrow (-\infty, -1] \cup [1, +\infty) \Rightarrow Rf$

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ج) $y = \frac{\sqrt[3]{x^2 + 1}}{\sqrt[3]{x^2}} \Rightarrow \sqrt[3]{x^2} + \frac{1}{\sqrt[3]{x^2}} \Rightarrow \sqrt[3]{x^2} > 0 \rightarrow (-\infty, -1] \cup [1, +\infty) \Rightarrow Rf$

د) $y = \sqrt{x} + \frac{1}{\sqrt{x}} \rightarrow \sqrt{x} > 0 \rightarrow [1, +\infty) \Rightarrow Rf$

$y = x^2 + \frac{1}{x^2 + 3} + 3 - 3 \Rightarrow (x^2 + 3) + \frac{1}{x^2 + 3} - 3 \Rightarrow [1, +\infty)$
 $(3) = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100$

9 بد

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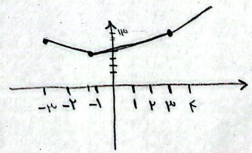
$y = \frac{x^2 + 3}{\sqrt{x^2 + 3}} \rightarrow x + 1 \Rightarrow \frac{x^2 + 3}{\sqrt{x^2 + 3}} + \frac{1}{\sqrt{x^2 + 3}} \Rightarrow \sqrt{x^2 + 3} + \frac{1}{\sqrt{x^2 + 3}} \Rightarrow Rf = [0, +\infty)$

تابع قسمة على كثير الحدود من الدرجة الأولى

$y = |x - 1| + |x^2 + 1|$

$(10) f' \rightarrow (-\frac{1}{x})$

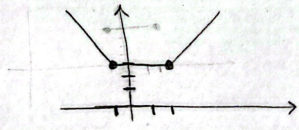
$\left\{ \begin{array}{l} x > 1 \Rightarrow x - 1 + x^2 + 1 \Rightarrow x^2 + x \\ -\frac{1}{x} < x \leq 1 \Rightarrow 1 - x + x^2 + 1 \Rightarrow x^2 - x + 2 \\ x < -\frac{1}{x} \Rightarrow 1 - x - x^2 - 1 \Rightarrow -x^2 - x \end{array} \right.$



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الف) $y = |x - 1| + |x^2 + 1| \Rightarrow$

$|x + 1| = (10)$
 $C(x - (-1))$

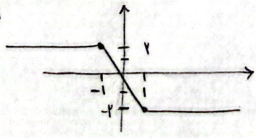


$Rf = [1, +\infty)$

1, 10

ب) $y = |x^2 - 1| - |x + 1|$

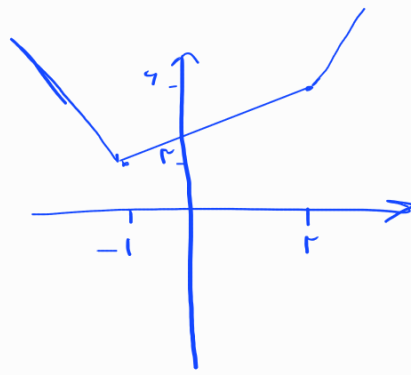
$(1) \rightarrow (-1)$



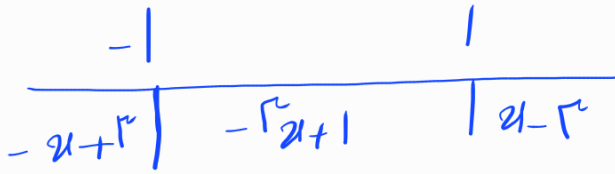
$[-1, 1] = Rf$



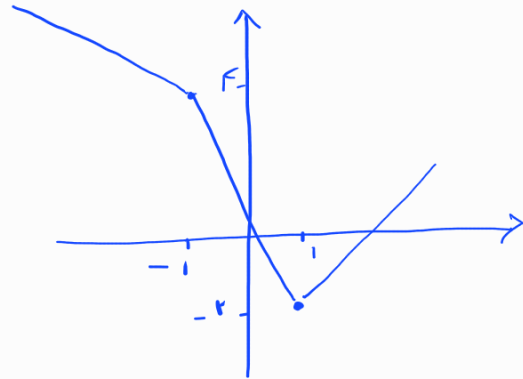
$$R = [2, +\infty)$$



١. ا.ب



$$R = [-1, +\infty)$$



١. ب.ا