Subject: ---------- Date: ----------

تکلیف ۵ — مهرداد ساجع

۱)
$x=0 \Rightarrow f(1)+f(2)=f(3) \Rightarrow b=0$
$x=2 \Rightarrow f(0)+f(4)=9$
$x=1 \Rightarrow f(3)=3$
$\Big\}\ f(x)=x$

$\Rightarrow \sqrt{-x^2+x} \Rightarrow \frac{\Delta}{4a}=\frac{1}{4} \Rightarrow R=[0,\frac{1}{2}]$

۲)
$\frac{x^3-4x}{x+2}=\frac{x(x-2)(x+2)}{x+2}=x^2-2x \Rightarrow D_f=R-\{-2,4\}$

۳)
$R_f=[-1,+\infty)-\{1\} \Rightarrow \frac{a+b}{2c}=\frac{2}{-2}=-1 \Rightarrow f(-1)=$

۳)
$\sqrt[3]{(x-2)^3}=\sqrt[3]{x^3-6x^2+12x-8} \Rightarrow D_f=[-4,12]$

$\Rightarrow y=x-2 \Rightarrow R_f=[-1,10]$

۴)
$D_{y_1}=R-\{1\} \Rightarrow R_{y_2}=R-\{1\}=R\left\{\frac{a}{c}\right\} \Rightarrow a=1$

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

$a+b=0$

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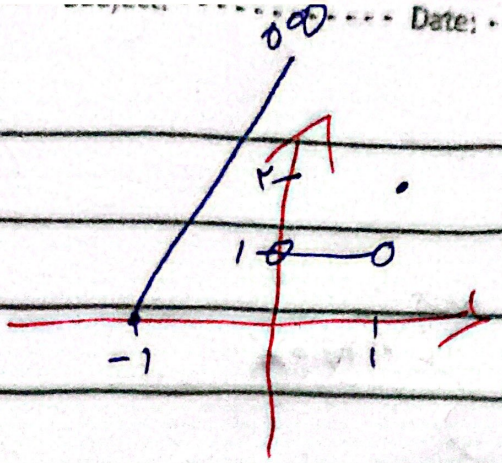

$x \to 1^+$ ⟶ 0

$x \to \infty$ ⟶ ∞

$x \to 1^-$ ⟶ 2

$\left[\frac{1}{2}, 1\right) \to 1$

$\left[1, \frac{3}{2}\right) \to 2$

$\left[\frac{3}{2}, 2\right) \to 3$

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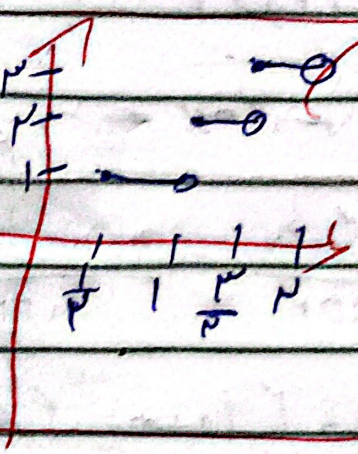

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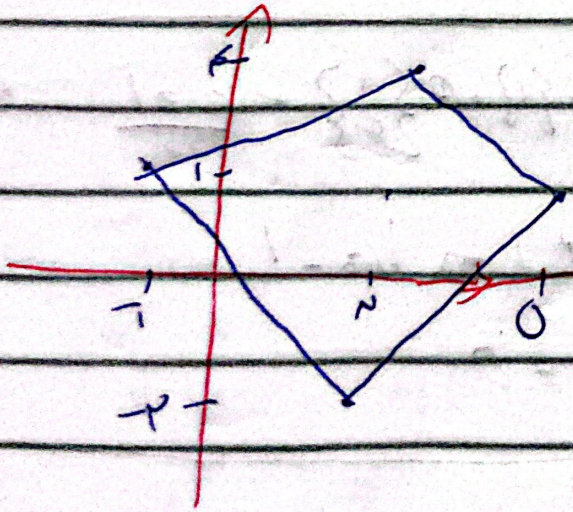

$x \to 1^+$ ⟶ 0

$x \to 1^-$ ⟶ 2

$x \to 0^+$ ⟶ 1

$x \to 0^-$ ⟶ 1

$x \to 1$ ⟶ ∞

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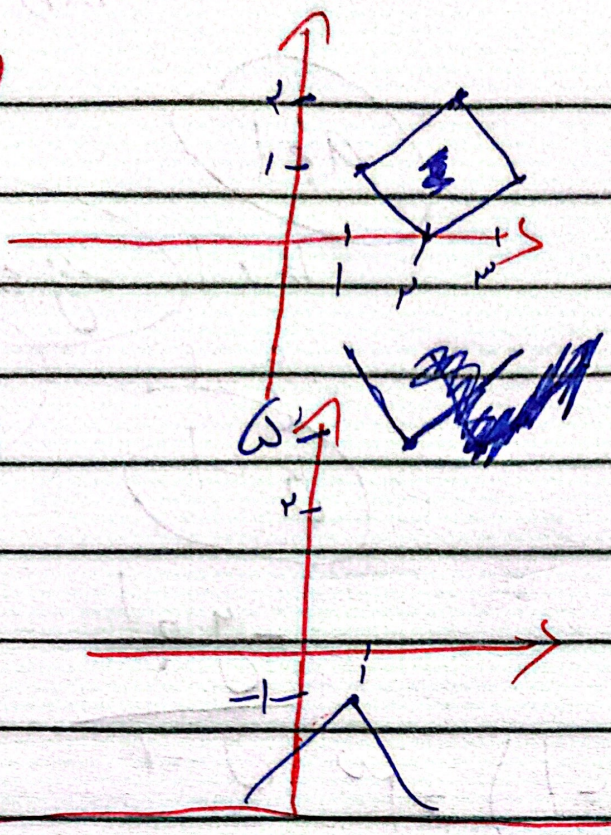

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$x \leq \frac{b}{a} \rightarrow (2-a)x \leq b$

$x \geq \frac{b}{a} \rightarrow (2-a)x \geq b$

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$2-a > 0 \Rightarrow a < 2$

$2-a < 0 \Rightarrow a > 2$

$2-a = 0 \Rightarrow a = 2$

$2-a > 0 \Rightarrow a < 2$

$a \in (-\infty, 2)$