11/5

نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۷ ..... کلاس .....

معادله سهمی جدید : $y = -\frac{1}{2}(x-4)^2 + 3$

$\Rightarrow -\frac{1}{2}(x-4)^2 + 3 = 0 \Rightarrow \frac{1}{2}(x-4)^2 = 3 \Rightarrow (x-4)^2 = 9$

$\Rightarrow x-4 = \pm 3 \Rightarrow x = 7$ و $x = 1$ ✓

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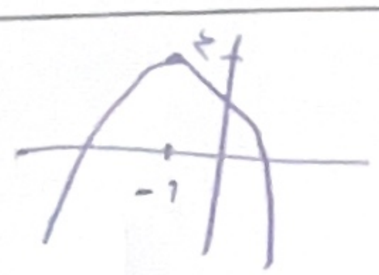
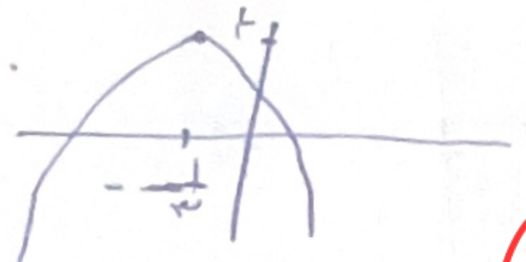
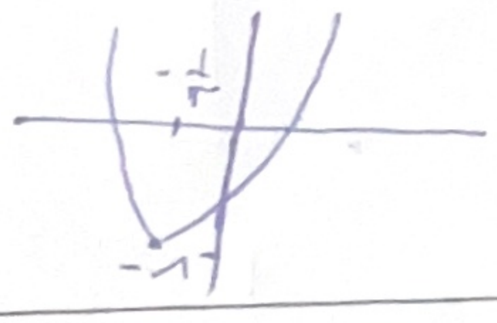
$f(x+2)$ →



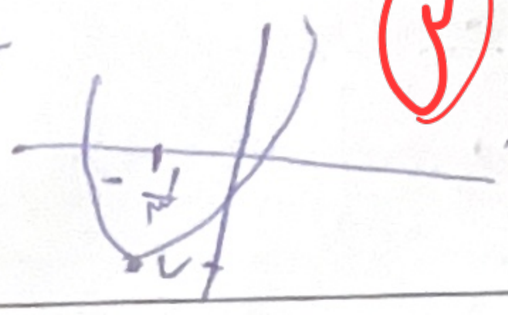
$f(2x+2)$ →



$-2f(\frac{1}{2}x+2)$ →



$1+2f(2x+2)$ →



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$\Rightarrow \begin{cases} \alpha = -\frac{1}{2} \\ \beta = -7 \end{cases} \Rightarrow \alpha\beta = \frac{7}{2}$ ✓

$x \to 1-x \rightarrow y = 3 - \sqrt{2(x-1)} \xrightarrow{-x} y = 3 - \sqrt{-2x-2}$

$\xrightarrow{+2} y = -\sqrt{-2x-2} + 1 \Rightarrow \frac{7}{2} = -\sqrt{-2x-2} + 1$

$\Rightarrow \sqrt{-2x-2} = -\frac{5}{2} \Rightarrow -2x-2 = \frac{11}{4} \Rightarrow -8x-8 = 11$

$\Rightarrow 8x = -19 \Rightarrow x = -\frac{19}{8}$ (۰/۵)

$y = \sqrt{2x+2} + 2 = \frac{7}{2} \rightarrow x = \frac{1}{8}$

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$D_f : -4 < x \leq 4 \Rightarrow -5 < x-1 \leq 3$

$D_g : -1 < x < b \Rightarrow 0 < x+1 \leq b+1$

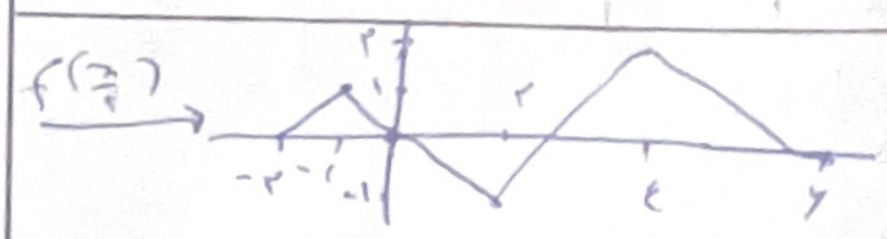
(۰/۵)

$\begin{cases} a+1 = -2 \\ b-1 = 3 \end{cases} \rightarrow \begin{matrix} a = -3 \\ b = 4 \end{matrix}$

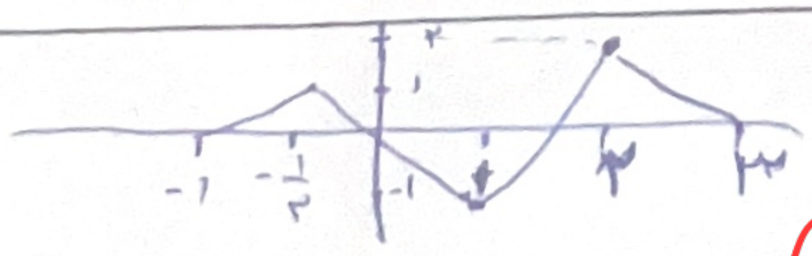
$\Rightarrow \begin{cases} a-1 = -2 \Rightarrow a = -1 \\ b+1 = 3 \Rightarrow b = 2 \end{cases} \Rightarrow a-b = -3$

$a-b = -9$

$f(\frac{x}{2})$ →



$f(x)$ →



$R_f : [-1, 2] \Rightarrow R_{g_2} = [0, \sqrt{3}]$ ✓

$D_f : [-1, 2] \Rightarrow D_{y_2} : [-1, 3]$

$R_{y_2} = [-\frac{1}{2}, \frac{7}{2}]$

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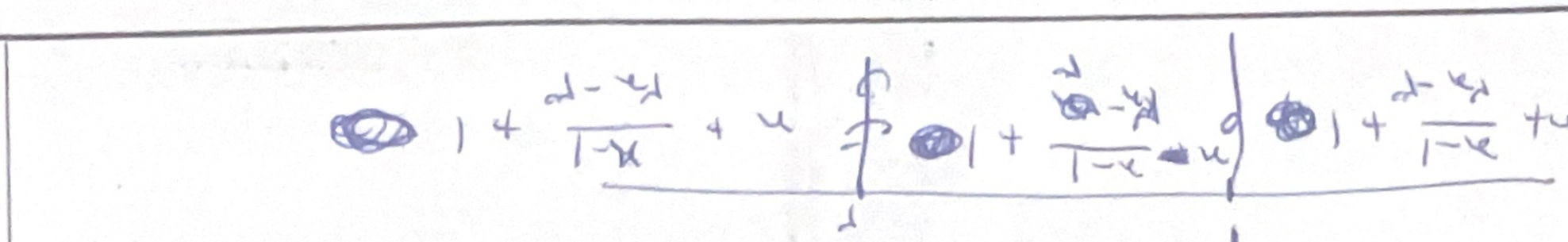

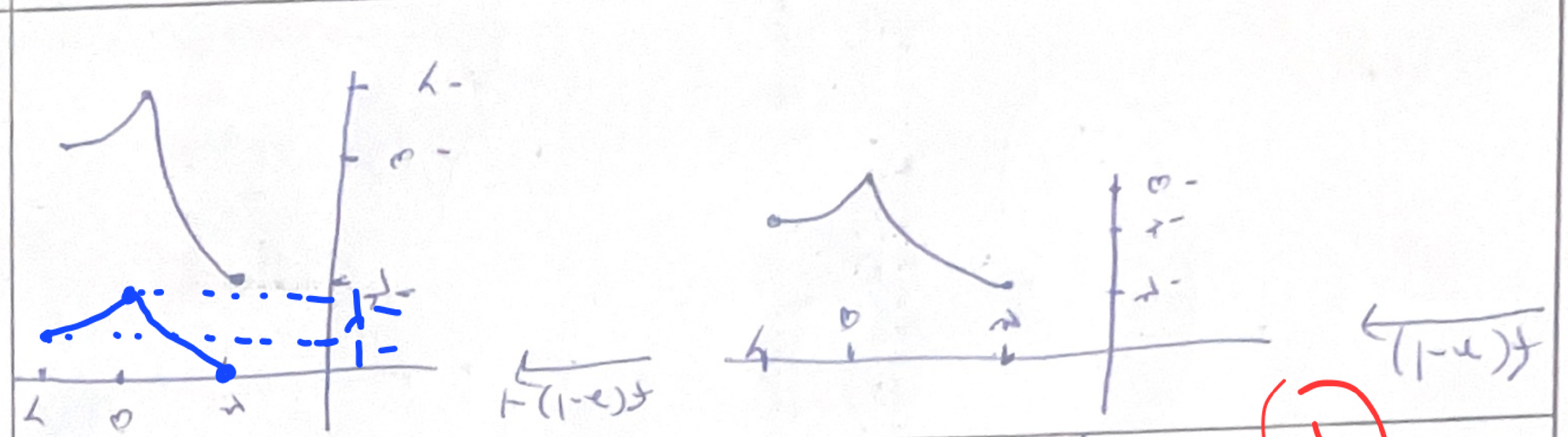

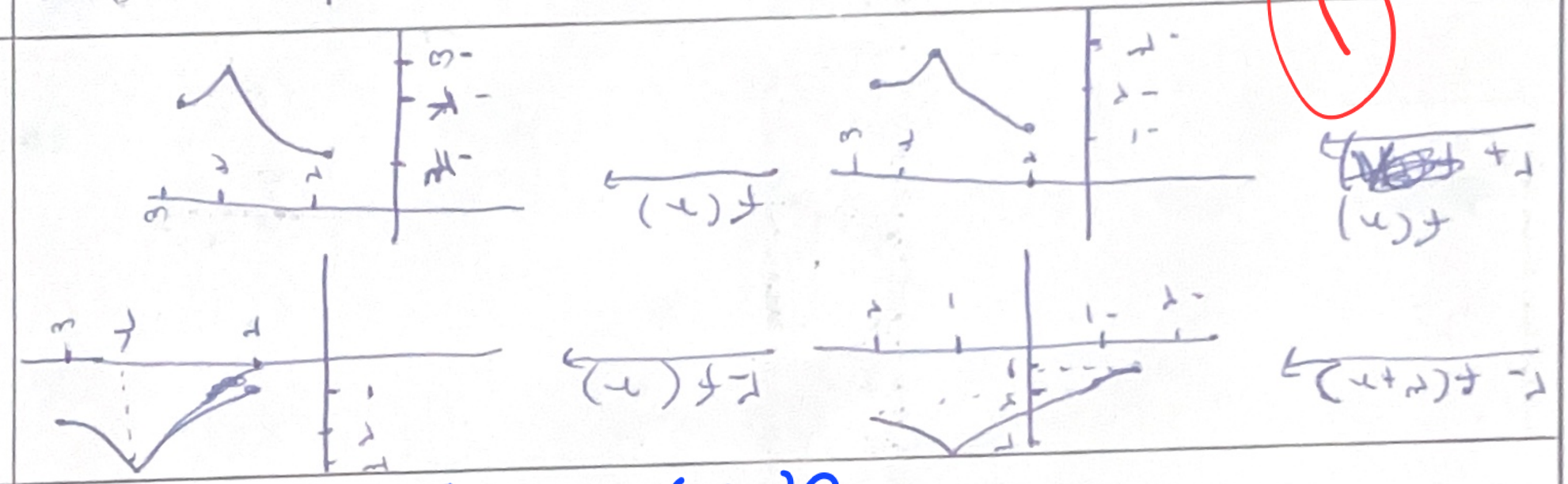

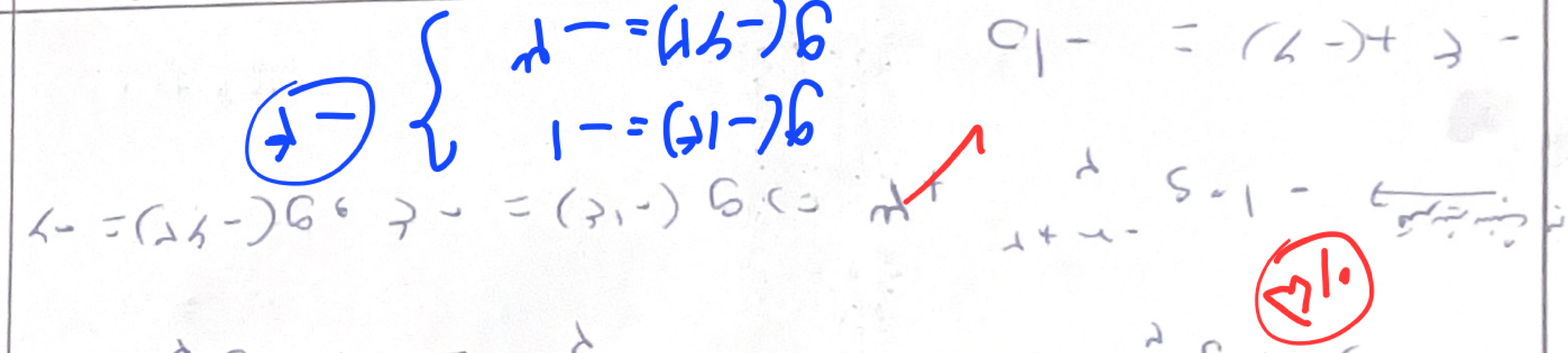

$x > \frac{3}{2}$

$x < 1$

$$\frac{2x^2-3x+x-1+2x-3}{2x-3} < 0 \Rightarrow \frac{2x^2-4}{2x-3} < 0$$ 9

(2)

$-\sqrt{2}$		$\sqrt{2}$		$\frac{3}{2}$	
−	+		−		+
ق	غ ق		غ ق		غ ق

$\Rightarrow x \le -\sqrt{2}$ ✓ I

$1 < x < \frac{3}{2}$

$$\frac{2x^2-3x-x+1+2x-3}{2x-3} < 0 \Rightarrow \frac{2x^2-2x-2}{2x-3} < 0$$ 9

$\frac{1-\sqrt{5}}{2}$		$\frac{3}{2}$		$\frac{1+\sqrt{5}}{2}$	
−	+		−		+
غ ق	غ ق		غ ق		غ ق

II در این بخش جواب ندارد.

$I \cup II : \boxed{x \le -\sqrt{2}}$ ✓ 9

$f(x) = \frac{27}{8}x^3$ 10

$f(x) = \frac{27}{8}(x-2)^3 + 27$

$28f(x) - f^2(x) \ge 0$

$f(x)(28 - f(x)) \ge 0$

$x \in [0, \frac{8}{3}]$ → ۳ عدد صحیح

$\Rightarrow \sqrt{28 \times \frac{27}{8}x^3 - (\frac{27}{8}x^3)^2} = g(x)$

$\Rightarrow 28 \times \frac{27}{8}x^3 \ge (\frac{27}{8}x^3)^2 \Rightarrow 28 \ge \frac{27}{8}x^3$

(0)

$\Rightarrow x^3 \le \frac{8 \times 28}{27} \Rightarrow x \le \frac{2 \times \sqrt[3]{28}}{3} \Rightarrow$ شامل بی‌نهایت عدد صحیح است