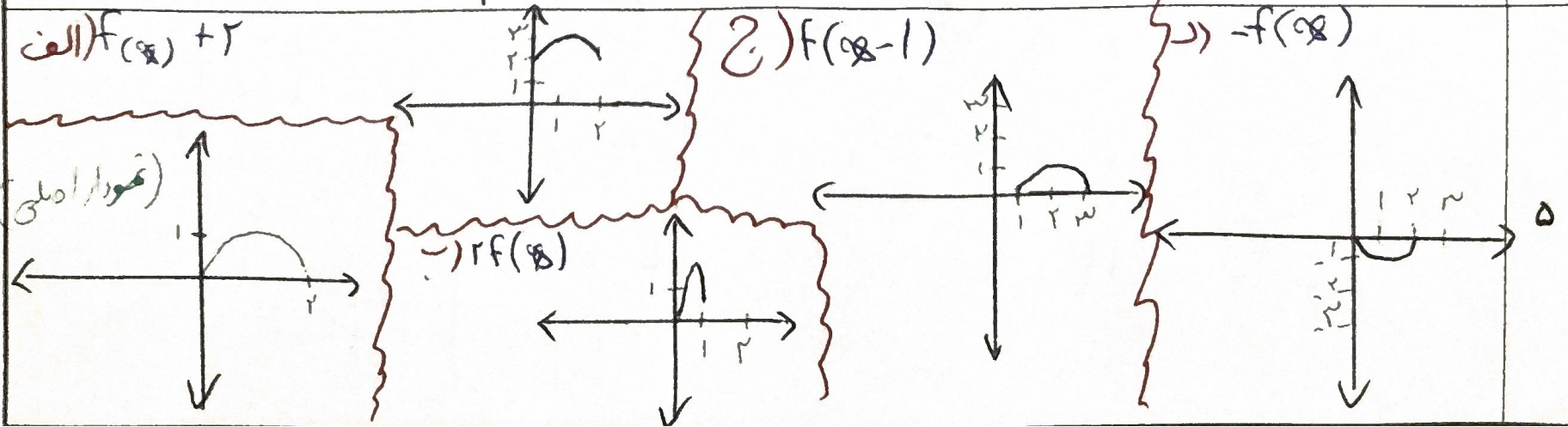
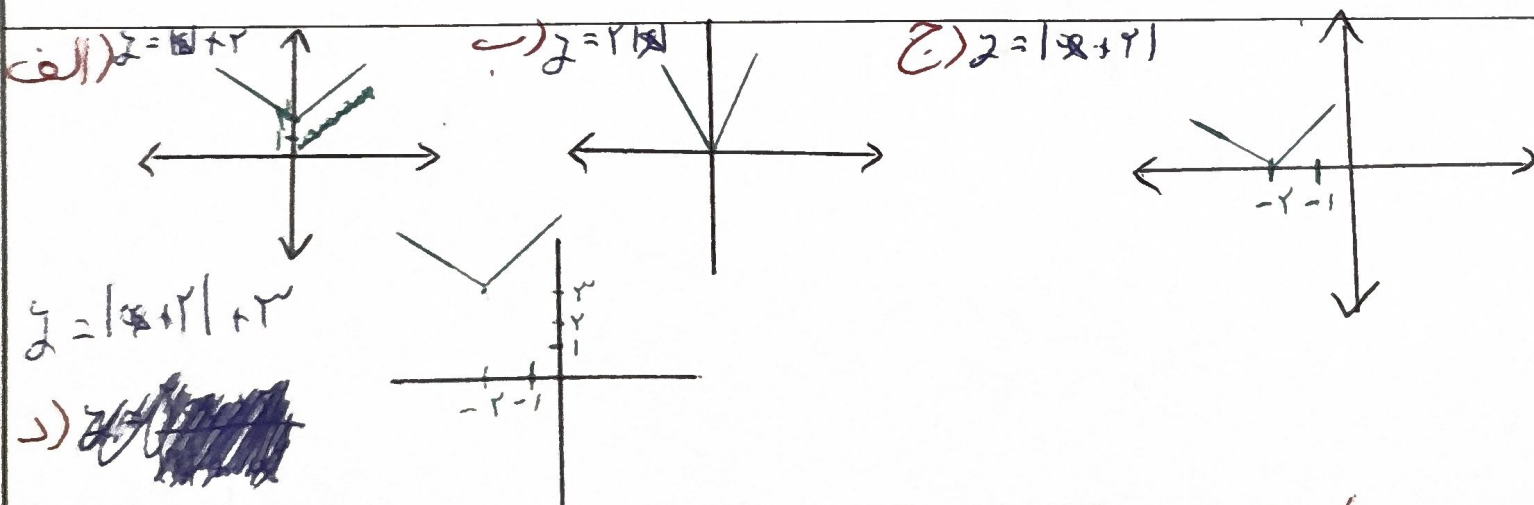


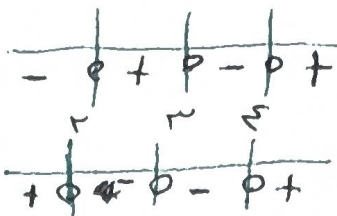
تابع است $y_1^3 = y_2^3 \Rightarrow y_1 = y_2$
 $y_1^3 = 2x^2 + x \Rightarrow y_2^3 = 2x^2 + x \Rightarrow y_1 = y_2$
 تابع نیست $|y_1| = |y_2| \Rightarrow y_1 = \pm y_2$
 $|y_1| = |y_2| \Rightarrow y_1 = \pm y_2$
 تابع نیست (چون جواب -2 دارد)
 صورت اولی و دومی نیست
 $\sqrt{x-2} + |y-2| = 0 \Rightarrow x=1 \Rightarrow 2 + |y-2| = 0 \Rightarrow |y-2| = -2$
 $x = \cos y \Rightarrow y = \frac{\pi}{4}, \frac{3\pi}{4}$

الف) $y = \frac{x^2 + 1}{x^2 - 2x} \Rightarrow x^2 - 2x = 0 \Rightarrow x^2 = 0 \Rightarrow D_f = R - \{2\}$
 ب) $y = \frac{x+1}{x^2 - \sqrt{x} + 1} \Rightarrow x^2 - \sqrt{x} + 1 = 0 \Rightarrow -1 = \Delta \Rightarrow D_f = R$
 ج) $y = \frac{x+1}{x^2 + x + 1} \Rightarrow x^2 + x + 1 = 0 \Rightarrow \Delta = \text{منفی} \Rightarrow D_f = R$
 د) $y = \frac{x+1}{x^2 - 2x} \Rightarrow x^2 - 2x = 0 \Rightarrow x = 0, 2 \Rightarrow D_f = R - \{0\} - \{2\}$

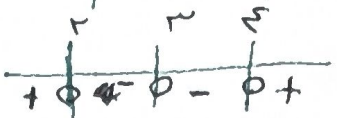
الف) $y = \sqrt{x-2} + \sqrt{x-2} \Rightarrow D_f = [\sqrt{2} + \infty) \cup [2, +\infty)$
 ب) $y = \frac{2x+1}{x^2+1} \Rightarrow D_f = R$
 ج) $y = \frac{\sqrt{x-2}}{x-2} \Rightarrow D_f = [2, +\infty) - \{2\}$
 د) $y = \frac{2x+1}{|x| + x^2} \Rightarrow D_f = R - \{0\}$



$$\text{الف) } y = (x-2)(x-3)(x-4)$$

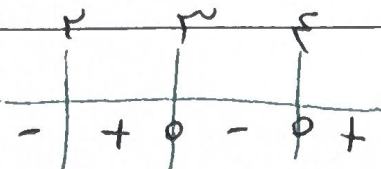


$$\text{ب) } y = (x-2)(x-3)^2(x-4)$$

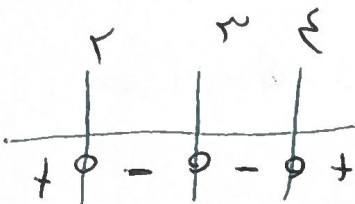


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$$\text{الف) } y = \frac{(x-2)(x-4)}{x-3}$$

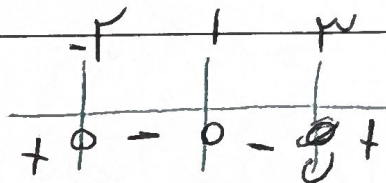


$$\text{ب) } y = \frac{(x-2)(x-3)}{(x-3)^2}$$

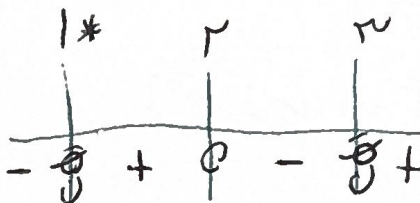


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$$\text{الف) } y = \frac{x^2 - 2x + 2}{x-3}$$

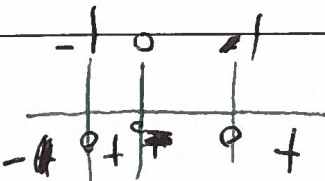


$$\text{ب) } y = \frac{x^2 - 2x + 2}{x^2 - 5x + 3} = 0$$



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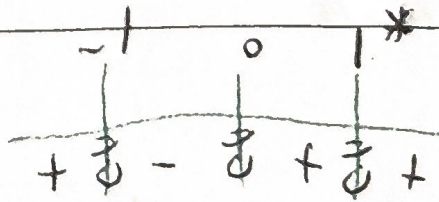
$$\text{الف) } y = \frac{x^2 - x - 1}{x^2 + x + 2}$$



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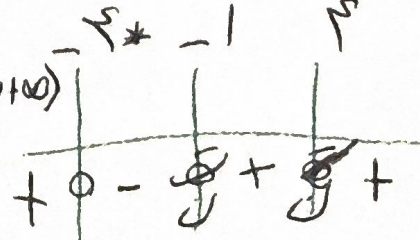
$$\text{ب) } y = \frac{x^2 + 2x + 2}{x^2 + 5x + 3} \rightarrow \text{برای تمامی مقادیر مثبت است}$$

$$\text{الف) } y = \sqrt{\frac{x^2 - 1}{x^2 - x}} \Rightarrow D_f = \text{[Scribbled out domain]}$$



$$D_f = (-\infty, -1) \cup (0, 1) \cup (1, +\infty)$$

$$\text{ب) } y = \sqrt{\frac{x^2 - 1}{x^2 - 0x + 3}} \Rightarrow D_f = (-\infty, 1] \cup (1, 2) \cup (2, +\infty)$$



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