

الف) $\begin{cases} y_1'' = 2x^2 + 1 \\ y_2'' = 2x^2 + 1 \end{cases} \rightarrow y_1'' = y_2'' \rightarrow y_1 = y_2$ صحیح ✓

ب) $|y| = 1 + 1^3 - 1 = 1 \Rightarrow y = \pm 1$ صحیح ✗

ج) $\alpha = 0$ صحیح ✓

د) $x = \cos y \Rightarrow y = \pi, 2\pi$ صحیح ✗

الف) $\rightarrow D_f = \mathbb{R} - \{0\} \cup \{4\}$

ب) $x^2 - 5x + 4 = 0 \rightarrow (x-4)^2 = -1$ ✗ $D_f = \mathbb{R}$

ج) $D_f = \mathbb{R}$

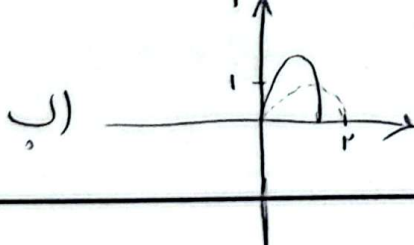
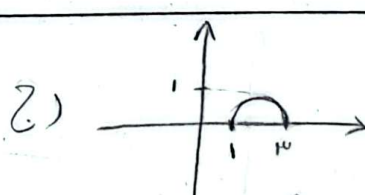
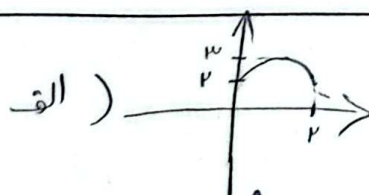
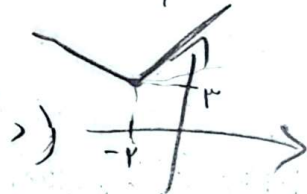
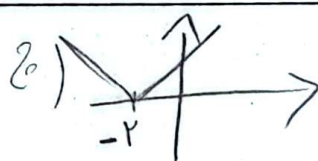
د) $x^2 - 4x = 0 \Rightarrow x(x-4) = 0 \Rightarrow x = 0, 4$
 $x^2 - 4x + 4 = 0 \Rightarrow (x-2)^2 = 0 \Rightarrow x = 2$
 $D_f = \mathbb{R} - \{-2, 0, 2\}$

الف) $x < 4 \quad x > 2 \Rightarrow 2 < x < 4 \quad D_f = [2, 4]$

ب) $\rightarrow D_f = \mathbb{R}$

ج) $x \neq 4 \quad x \geq 2 \quad D_f = [2, +\infty) - \{4\}$

د) $D_f = \mathbb{R}$



1, 0, 6

2, 0, 0

الف) $x=2, x=1, x=1$

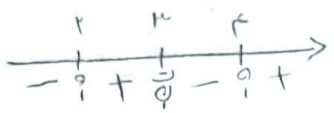


6

ب)



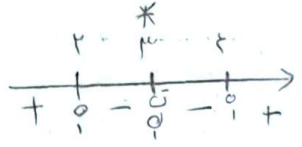
الف)



$[1, 2] \cup [4, +\infty)$

7

ب)



$(-\infty, 1] \cup [4, +\infty)$

الف)

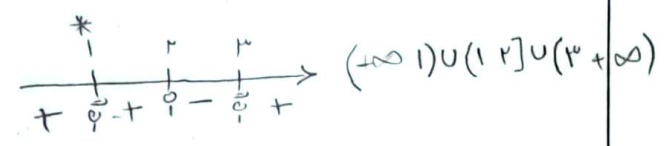
$(x-1)(x-2) = 0$
 $x=1, x=2$



8

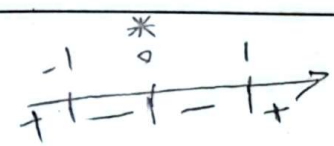
ب)

$(x-1)(x-2) = 0$
 $(x-1)(x-3) = 0$



الف)

$x^2(x^2-1) = x^2(x-1)(x+1)$



9

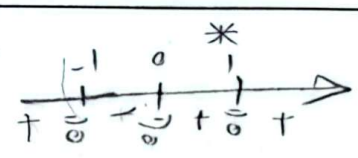
ب)

~~$(x+1)(x+2) = -2$~~
 $(x+1)$

$\times \mathbb{R} \checkmark$

$x \neq 1$
 $x \neq 0$
 $x \neq -1$

$\frac{x^2-1}{x^2-x} \geq 0$ $x^2-1 \geq 0$

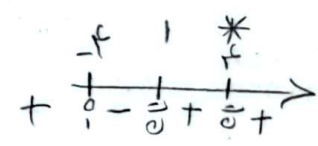


10

الف) $\mathbb{R} - [-1, 0] \cup \{1\}$

ب)

$\frac{(x+1)(x-1)}{(x-1)(x-1)}$



$(-\infty, -1] \cup (1, +\infty)$