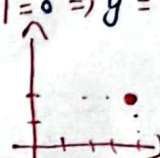


الف) $y^3 - x = 2x^2 \Rightarrow y^3 = 2x^2 + x \Rightarrow y_1^3 = 2x^2 + x$
 $y_2^3 = 2x^2 + x$ } $\Rightarrow y_1^3 = y_2^3 \Rightarrow y_1 = y_2$ تابع هست (تعمیر ریاضی)

ب) $|y| + x^2 = x + 3, x=0 \Rightarrow |y| = 3 \Rightarrow y = \pm 3$ تابع نیست مثال نقض

ج) $\sqrt{x-4} + |y-2| = 0 \Rightarrow \sqrt{x-4} = 0 \Rightarrow x=4, |y-2|=0 \Rightarrow y=2$ جمع دو عدد همواره مثبت صفر شده بار رسم شکل

د) $x = \cos y, x = \sqrt{\frac{2}{\pi}} \Rightarrow y = 3.14, 4.5$ تابع نیست با مثال نقض



الف) $y = \frac{x+4}{x^2-4x} \Rightarrow x(x-4) \neq 0 \Rightarrow D_f = \mathbb{R} - \{0, 4\}$

ب) $y = \frac{x+4}{x^2-7x+14} \Rightarrow \Delta = b^2 - 4ac = (-7)^2 - 4 \cdot 1 \cdot 14 < 0 \Rightarrow D_f = \mathbb{R}$

ج) $y = \frac{x+4}{x^2+x+4} \Rightarrow \Delta = 1^2 - 4 \cdot 1 \cdot 4 < 0 \Rightarrow D_f = \mathbb{R}$

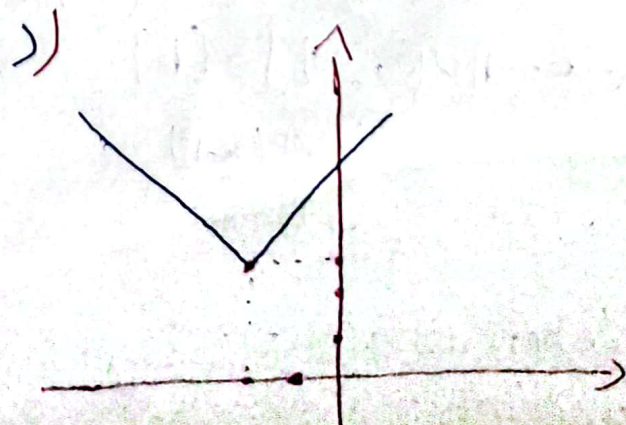
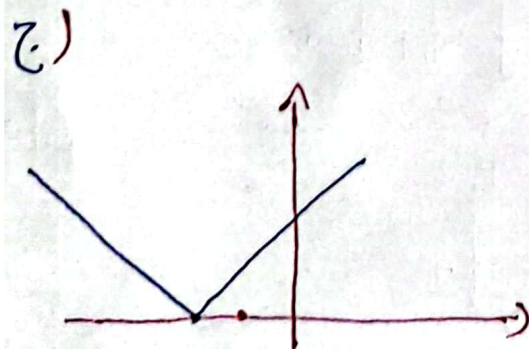
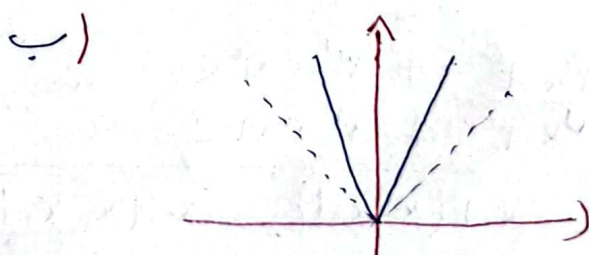
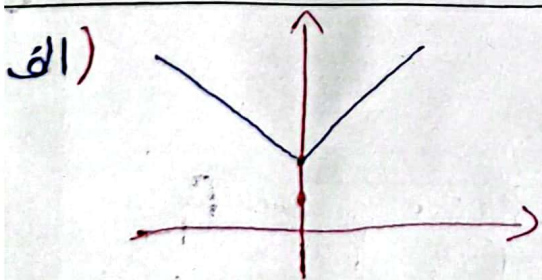
د) $y = \frac{x+4}{x^2-4x^2} \Rightarrow (x^2-2x)(x^2+2x) = x(x-2)(x+2) \Rightarrow D_f = \mathbb{R} - \{2, 0, -2\}$

الف) $y = \sqrt{4-x} + \sqrt{x-2} \Rightarrow x \geq 2 \Rightarrow x \leq 4 \Rightarrow 2 \leq x \leq 4 \Rightarrow D_f = [2, 4]$

ب) $y = \frac{3x+1}{x^2+1} \Rightarrow D_f = \mathbb{R}$

ج) $y = \frac{\sqrt{x-2}}{x-4} \Rightarrow x \geq 2 \Rightarrow D_f = [2, +\infty] - \{4\}$

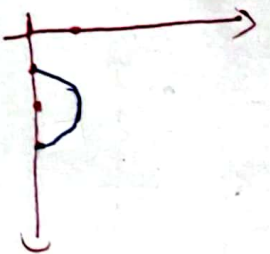
د) $y = \frac{2x+3}{|x|+x^2} \Rightarrow D_f = \mathbb{R} - \{0\}$





3

2



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

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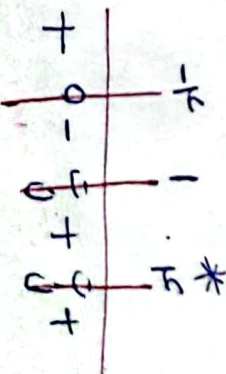
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3

3

1 (3)