نام و نام خانوادگی: تانیا ترک ترابی   پاسخنامه تشریحی تکلیف شماره: ۳   کلاس: دهم یکشنبه

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الف) $y^3 - x = 2x^2 \xRightarrow{x=1} y^3 - 1 = 2 \Rightarrow y^3 = 3 \Rightarrow y = \sqrt[3]{3}$ تابع هست

ب) $|y| + x^2 = x + 3 \xRightarrow{x=0} |y| = 3 \Rightarrow y = \pm 3$ تابع نیست

ج) $\sqrt{x-4} + |y-2| = 0 \xRightarrow{x=5} \sqrt{1} + |y-2| = 0 \Rightarrow \varnothing$ تابع هست

د) $x = \cos y \xRightarrow{x=0} 0 = \cos 90^\circ , 270^\circ$ تابع نیست

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الف) $y = \frac{x+4}{x^2-4x} \Rightarrow \frac{x+4}{(x-2)(x+2)}$ I: $x^2-4x \neq 0$

$D_f = [4, +\infty) \cup (2,4] \cup (-2,2) \cup (-\infty,-2)$

ب) $y = \frac{x+4}{x^2-7x+16} \Rightarrow D_f = \mathbb{R}$ (ریشه حقیقی ندارد)

ج) $\frac{x+4}{x^2+x+4} \Rightarrow D_f = \mathbb{R}$ (ریشه حقیقی ندارد)

د) $\frac{x+4}{x^4-4x^2} \Rightarrow \frac{x+4}{x^2(x^2-4)} \Rightarrow \frac{x+4}{x^2(x-2)(x+2)}$ I: $x^4-4x^2 \neq 0$

$D_f = (2,+\infty) \cup (-2,0) \cup (-2,-4] \cup (-\infty,-4]$ یا: $D_f = \mathbb{R} - \{2,0,-2\}$

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الف) $y = \sqrt{6-x} + \sqrt{x-2}$ I: $6-x \geq 0 \Rightarrow -x \geq -6 \Rightarrow x \leq 6$ II: $x-2 \geq 0 \Rightarrow x \geq 2$ $D_f = [2,6]$

ب) $y = \frac{3x+1}{x^2+1} \Rightarrow x^2+1 \neq 0 \Rightarrow x^2 \geq 0 \Rightarrow x^2+1 \neq 0$ $D_f = \mathbb{R}$

ج) $y = \frac{\sqrt{x-2}}{x-4}$ I: $x-2 \geq 0$ II: $x \geq 2$ III: $x-4 \neq \Rightarrow x \neq 4$

$D_f = [2,4) \cup (4,+\infty)$

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

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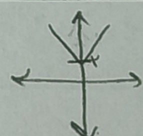
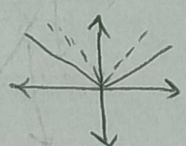
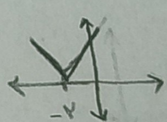
الف) $y = |x| + 2$



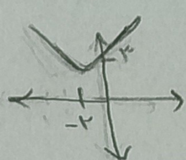
ب) $y = 2|x|$



ج) $y = |x+2|$



د) $y = |x+2| + 3$



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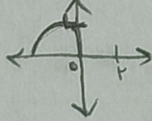
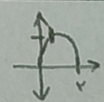
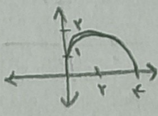
الف) $f(x) + 2$



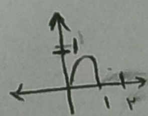
$f(x) \Rightarrow$



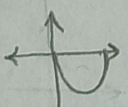
ب) $2f(x)$



ج) $f(x-1)$



د) $-f(x)$



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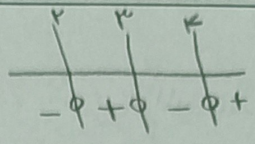
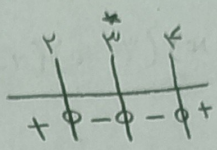
الف) $y=(x-2)(x-3)(x-4)$



ب) $(x-2)(x-3)^2(x-4)$



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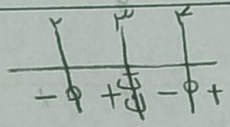
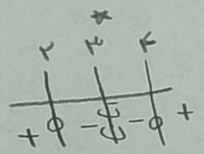
الف) $\frac{(x-2)(x-4)}{x-3}$



ب) $y=\frac{(x-2)(x-4)}{(x-3)^2}$



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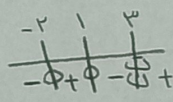
الف) $y=\frac{x^3-3x+2}{x-3} \Rightarrow \frac{x^2+x-2}{x-3} \Rightarrow \frac{(x+2)(x-1)}{x-3}$



$x^3-3x+2 \mid x-1$

x^3-x^2

x^2-3x+2

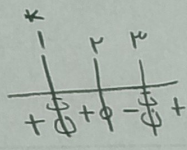
x^2-x

$-2x+2$

$-2x+2$

0

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



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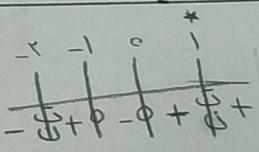
الف) $y=\frac{x^4-x^2}{x^2+x+2} \Rightarrow \frac{x^2(x^2-1)}{(x+2)(x-1)} \Rightarrow \frac{x^2(x-1)(x+1)}{(x+2)(x-1)}$



ب) $y=\frac{x^2+3x+4}{x^2+2x+3}$ ریشه حقیقی ندارد (همواره مثبت) $\Rightarrow y>0$

ریشه حقیقی ندارد (همواره مثبت)

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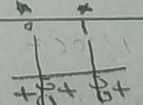
الف) $y=\sqrt{\frac{x^3-1}{x^2-x}}$

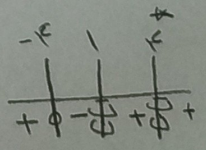
I: $x^3-1 \geq 0$

II: $x^2-x > 0$



$D_f = \mathbb{R} - \{1, 0\}$

ب) $y=\sqrt{\frac{x^2-16}{x^2-5x+4}} \Rightarrow \sqrt{\frac{(x-4)(x+4)}{(x-1)(x-4)}}$



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