

در کلید

تکلیف

الف) $x^2 - x = 2x^2$

$x=1 \Rightarrow x^2 - 1 = 2$

$y^2 = 3 \Rightarrow y = \pm \sqrt{3}$ تابع نیست

ب) $|y| + x^2 = x + 3$

$x=1 \Rightarrow |y| = 3 \Rightarrow y = \pm 3$ تابع نیست

ج) $\sqrt{x-4} + |y-2| = 0$

خ باید بزرگتر از 4 باشد و مطلق باید منفی شود که غیر ممکن است پس هیچ جوابی ندارد

$x=4 \Rightarrow |y-2| = 0 \Rightarrow y=2$ تابع است $(2, 4)$

د) $x = \cos y$ $x=0 \Rightarrow y = \frac{3\pi}{2}$ پس تابع نیست $y = \frac{\pi}{2}$

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

$x(x-4) \neq 0 \Rightarrow x \neq 0$

$D(y) = \mathbb{R} - \{0\} - \{4\}$

ب) $y = \frac{x+4}{x^2-7x+12}$

$\Delta = b^2 - 4ac = 49 - 48 = 1 \Rightarrow \text{هیچوقت صفر نمی شود}$

$D(y) = \mathbb{R}$

ج) $y = \frac{x+4}{x^2+x+6}$

$\Delta = 1 - 12 = -11 \Rightarrow D(y) = \mathbb{R}$

د) $y = \frac{x+4}{x^4-4x^2} = \frac{x+4}{x^2(x^2-4)} = \frac{x+4}{x^2(x+2)(x-2)}$

$D(y) = \mathbb{R} - \{-2\} - \{0\} - \{2\}$

الف) $y = \sqrt{6-x} + \sqrt{x-2}$

$6-x \geq 0 \Rightarrow x \leq 6$

$x-2 \geq 0 \Rightarrow x \geq 2$

$\Rightarrow D(y) = [2, 6]$

ب) $y = \frac{2x+1}{x^2+1}$

$\Rightarrow x^2 + 1 \neq 0 \Rightarrow x^2 \neq -1 \Rightarrow D(y) = \mathbb{R}$

ج) $y = \frac{\sqrt{x-2}}{x-4}$

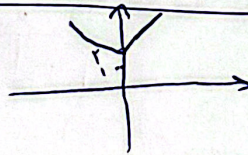
$\Rightarrow \begin{cases} x-2 \geq 0 \Rightarrow x \geq 2 \\ x-4 \neq 0 \Rightarrow x \neq 4 \end{cases} \Rightarrow D(y) = [2, +\infty) - \{4\}$

د) $y = \frac{|x+3|}{|x|+x^2}$

$\Rightarrow |x| + x^2 \neq 0 \Rightarrow x \neq 0 \Rightarrow D(y) = \mathbb{R} - \{0\}$

تنها فقط مثبت مثبت مثبت $x=0$ خارج صفری شود

الف) $y = |x| + 2$



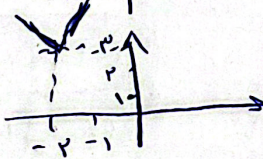
ب) $y = 2|x|$



ج) $y = |x+2|$



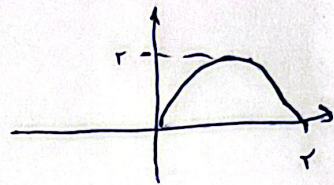
د) $y = |x+2| + 3$



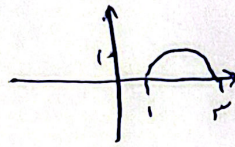
الف) $f(x+2)$



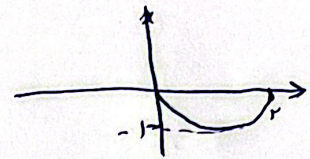
ب) $2f(x)$



ج) $f(x-1)$

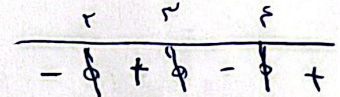


د) $-f(x)$

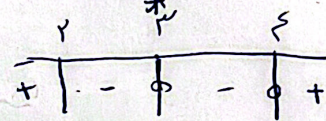


د

الف) $y = (x-2)(x-3)(x-4)$

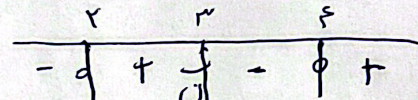


ب) $y = (x-2)(x-3)^2(x-4)$

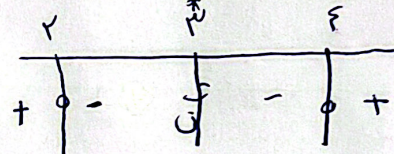


4

الف) $y = \frac{(x-2)(x-4)}{x-3}$

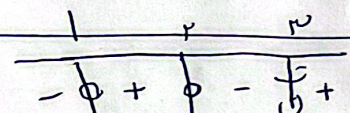


ب) $y = \frac{(x-2)(x-4)}{(x-3)^2}$

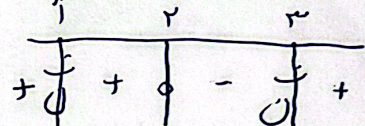


✓

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



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



1

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

ب) $y = \frac{x^2 + 3x + 2}{x^2 + 2x + 3}$

حرفه ای است
هر مقدار مثبت است

9

الف) $y = \sqrt{\frac{x^2 - 1}{x^2 - 4}}$

ب) $y = \sqrt{\frac{x^2 - 1}{x^2 - 4}}$

ب) $y = \sqrt{\frac{x^2 - 1}{x^2 - 4}}$

$= \sqrt{\frac{(x-1)(x+1)}{x(x^2-4)}} = \sqrt{\frac{(x-1)(x+1)}{x(x-2)(x+2)}}$

$= \sqrt{\frac{(x-1)(x+1)}{(x-2)(x+2)}}$

$D(y) = \mathbb{R} - (-4, 1) - \{4\}$

$D(y) = \mathbb{R} - [-1, 4] - \{4\}$

10