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الف) $y^3 - x = 2x^2 \xrightarrow{x=0} y = \sqrt[3]{2x^2}$ تابع هست ✓

ب) $|y| + x^2 = x + 3 \xrightarrow{x=0} \begin{cases} y = -3 \\ y = 3 \end{cases}$ تابع نیست ✗ ✓

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ج) $\sqrt{x-4} + |y-2| = 0 \xrightarrow{x=0} y = 2$ تابع هست ✓

د) $x = \cos y \xrightarrow{x=0} \cos y = 0 \begin{cases} y = 90^\circ \\ y = 270^\circ \end{cases}$ تابع نیست ✗ ✓

الف) $y = \frac{x+4}{x^2-4x} = \frac{x+4}{x(x-4)}$ $\frac{-4}{-4} + \frac{1}{0} - \frac{1}{4} + \frac{1}{4}$ $D_f: (-\infty, 0) \cup (0, 4) \cup (4, +\infty) \div D_f$ ✓

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ب) $y = \frac{x+4}{x^2-4x+4} = \frac{x+4}{(x-2)^2}$ $D_f: \mathbb{R}$ ✓ ج) $\frac{x+4}{x^2+x+4} = y \rightarrow D_f: \mathbb{R}$ ✓

د) $\frac{x+4}{(x^2-4x)(x^2-2x)} = \frac{-4}{-4} + \frac{-2}{0} - \frac{1}{2} - \frac{1}{2} + \frac{1}{2}$ $D_f: (-\infty, -2) \cup (-2, 0) \cup (0, 2) \cup (2, +\infty)$ ✓

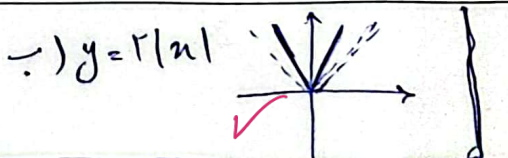
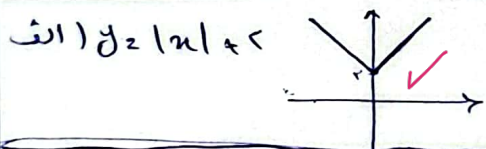
الف) $y = \sqrt{4-x} + \sqrt{x-2} = \begin{cases} x \leq 4 \\ x \geq 2 \end{cases}$ $D_f: 2 \leq x \leq 4$ ✓

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ب) $\frac{3x+1}{x^2+1} = \frac{1}{x-1}$ $D_f: x \neq -\frac{1}{3}$ ج) $\frac{\sqrt{x-2}}{x-4} = \frac{1}{x-4}$ $D_f: x > 4$ ✓

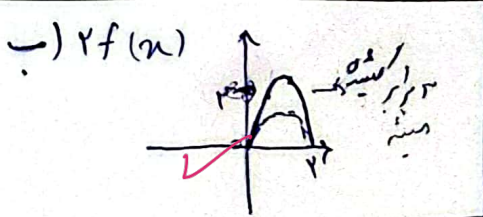
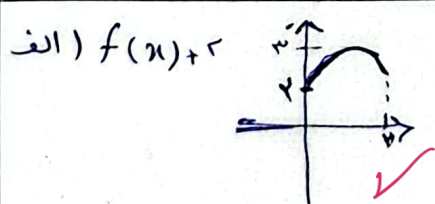
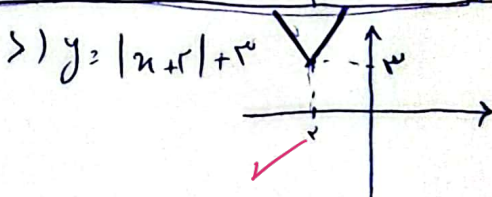
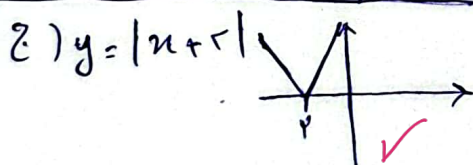
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د) $\frac{3}{x^2+1} = \frac{3}{x^2+1}$ $D_f: (0, +\infty) \cup (-\infty, 0)$ ✓



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