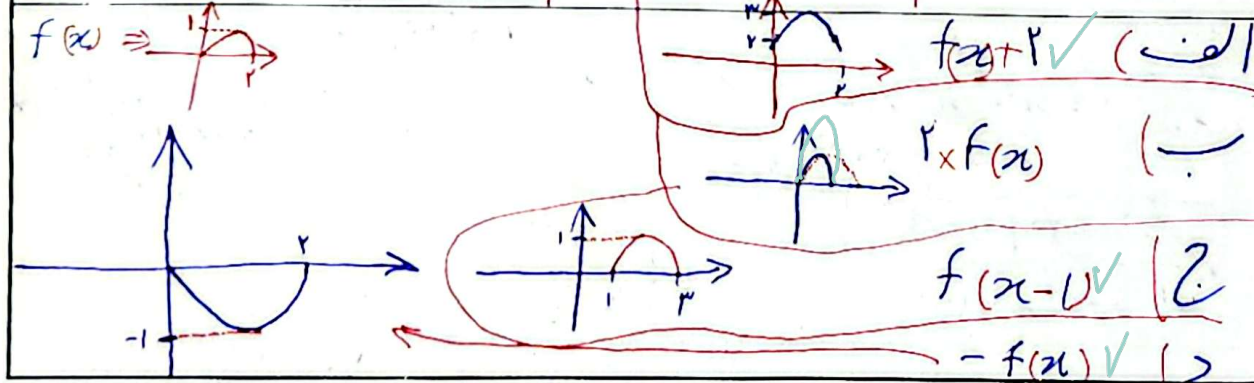
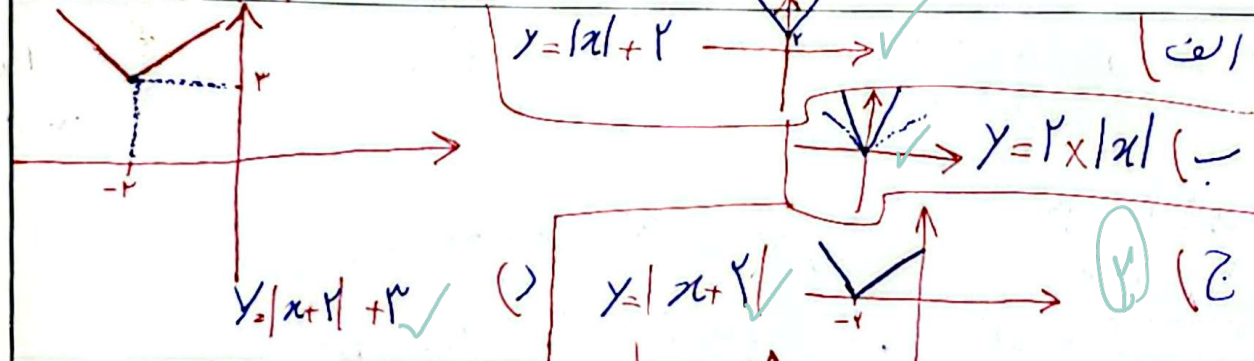


الف) $y^3 - x = 2x^2$ $y_1^3 = 2x_1^2 + x$ $y_2^3 = 2x_2^2 + x$ $y_1^3 = y_2^3 \Rightarrow y_1 = y_2$ صحیح ✓
 ب) $|x| + x^2 = x^3$ $|y| = -x^2 + x + 3$ $|y| \geq 3$ $y \geq 3$ یا $y \leq -3$ صحیح ✓
 ج) جمع ۲ عدد مثبت برابر صفر نشود پس هر دو مثبت و نقطه ها $\sqrt{x-4} + |y-5| = 0 \Rightarrow x=4, y=5$ صحیح ✓
 د) $x = \cos y \Rightarrow x=0 \Rightarrow 0 = \cos y \Rightarrow y = \frac{\pi}{2}, \frac{3\pi}{2}$ صحیح ✓

الف) $y = \frac{x+4}{x^2-4x} \Rightarrow x^2 - 4x \neq 0 \Rightarrow x \neq 0 \Rightarrow x \neq 4$ $D_f = \mathbb{R} - \{0, 4\}$ صحیح ✓
 ب) $y = \frac{x+4}{x^2-4x+4}$ $D_f = \mathbb{R}$ صحیح ✓
 ج) $y = \frac{x+4}{x^2-4x+4}$ $D_f = \mathbb{R}$ صحیح ✓
 د) $y = \frac{x+4}{x^2-4x}$ $D_f = \mathbb{R} - \{0, 4\}$ صحیح ✓

الف) $y = \sqrt{4-x} + \sqrt{x^2} \Rightarrow y-x \geq 0 \Rightarrow x \leq 4$ $\{x-2 \geq 0 \Rightarrow x \geq 2\}$ $D_f = [2, 4]$ صحیح ✓
 ب) $y = \frac{2x+1}{2x+1}$ $D_f = \mathbb{R}$ صحیح ✓
 ج) $y = \frac{\sqrt{x-2}}{x^2}$ $x-2 \geq 0 \Rightarrow x \geq 2$ $\{x-2 \neq 0 \Rightarrow x \neq 2\}$ $D_f = (2, +\infty)$ صحیح ✓
 د) $y = \frac{2x+3}{|x|+x}$ $D_f = \mathbb{R} - \{0\}$ صحیح ✓



$$[2, 3] \cup [4, +\infty) \leftarrow (+)$$

$$y = (x^2)(x^3)(x-4) \quad \text{الف} \quad (-\infty, 2] \cup [3, 4)$$

$\frac{-}{0} \quad \frac{+}{0} \quad \frac{-}{0} \quad \frac{+}{0}$

$$y = (x-2)(x-3)(x-4) \quad \text{ب} \quad (-\infty, 2] \cup [3, +\infty)$$

$\frac{+}{0} \quad \frac{-}{0} \quad \frac{-}{0} \quad \frac{+}{0}$

$$y = \frac{(x-2)(x-4)}{x-3} \quad \text{الف} \quad (-\infty, 2] \cup [3, 4)$$

$\frac{-}{0} \quad \frac{+}{0} \quad \frac{-}{0} \quad \frac{+}{0}$

$$y = \frac{x-1}{(x-3)^2} \quad \text{ب} \quad (-\infty, 2] \cup [3, +\infty)$$

$\frac{+}{0} \quad \frac{-}{0} \quad \frac{-}{0} \quad \frac{+}{0}$

$$y = \frac{x^3 - 3x + 2}{x^3} \quad \text{الف} \quad (-\infty, -2] \cup [2, +\infty)$$

$\frac{+}{0} \quad \frac{-}{0} \quad \frac{-}{0} \quad \frac{+}{0}$

$$y = \frac{x^2 - 3x + 2}{x^2 - 4x + 2} \quad \text{ب} \quad (-\infty, 2] \cup [3, +\infty)$$

$\frac{+}{0} \quad \frac{-}{0} \quad \frac{-}{0} \quad \frac{+}{0}$

$$y = \frac{x^4 - x^2}{x^2 + x + 2} \quad \text{الف} \quad (-\infty, -1] \cup [1, +\infty)$$

$\frac{+}{0} \quad \frac{-}{0} \quad \frac{-}{0} \quad \frac{+}{0}$

$$y = \frac{x^2 + 3x + 4}{x^2 + 2x + 3} \Rightarrow Df = IR \Rightarrow \text{به ازای همه ی مقادیر مثبت است}$$

$$y = \sqrt{\frac{x^2 - 1}{x^2 - x}} \quad \text{الف} \quad Df = (-\infty, -1) \cup (0, 1) \cup (1, +\infty)$$

$\frac{+}{0} \quad \frac{-}{0} \quad \frac{-}{0} \quad \frac{+}{0}$

$$y = \sqrt{\frac{x^2 - 14}{x^2 - 5x + 4}} \quad \text{ب} \quad Df = (-\infty, 4] \cup [1, +\infty)$$

$\frac{+}{0} \quad \frac{-}{0} \quad \frac{-}{0} \quad \frac{+}{0}$