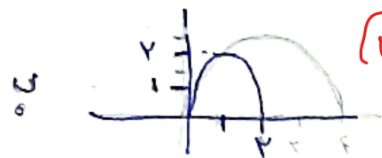
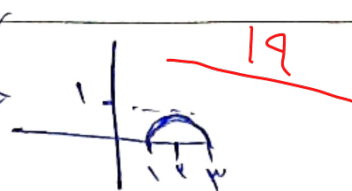
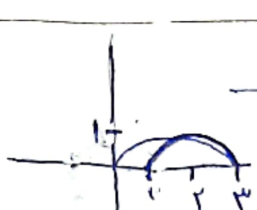
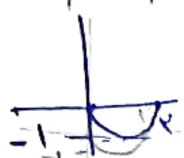


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$$\begin{aligned}
 x^2 - 4x + 4 &= 0 \quad (x-2)(x-2) \quad \frac{4}{+4-4+} \quad (-\infty, 2) \cup (2, +\infty) \\
 x^2 - 4x + 4 &= 0 \quad (x-1)(x-3) \quad \frac{1}{+1-1+} \quad (1, 3) \\
 x^2 + 4x + 4 &= 0 \quad (x+1)(x+3) \quad \frac{-4}{+4-4+} \quad (-\infty, -3] \cup [-1, +\infty) \\
 x^2 - 4x + 4 &= 0 \quad (x-1)(x-3) \quad \frac{1}{+1-1+} \quad [1, 3] \quad \text{د) } \checkmark
 \end{aligned}$$

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$$x - 4 \neq 0 \quad x \neq 4 \quad , \quad x^2 - 4x + 4 = 0 \rightarrow (x-2)(x-2) \rightarrow \frac{1}{-4+4-4+} \quad (-\infty, 1) \cup (1, 4)$$

$$\begin{aligned}
 x^2 - 1 &= 0 \quad x = \pm 1 \\
 x^2 - 4x + 4 &= 0 \quad (x-1)(x-3) \quad \frac{1}{+1-1+} \quad D_f = (-\infty, -1] \cup (3, +\infty)
 \end{aligned}$$

$$\begin{aligned}
 x^2 - x &\neq 0 \quad x^2 \geq x \quad x^2 = 1 \rightarrow x = \pm 1 \\
 \frac{x^2 - 1}{x^2 - x} &\geq 0 \rightarrow \frac{x^2 - 1}{x^2 - x} \geq 0 \rightarrow x(x-1) \geq 0 \rightarrow x \leq 0 \text{ or } x \geq 1 \\
 x^2 - 1 &\geq 0 \rightarrow (x+1)(x-1) \geq 0 \rightarrow x \leq -1 \text{ or } x \geq 1 \\
 x^2 - 4x + 4 &\geq 0 \rightarrow (x-1)(x-3) \geq 0 \rightarrow x \leq 1 \text{ or } x \geq 3 \\
 D_f &= (-\infty, -1] \cup (1, 3) \cup (3, +\infty) = \{x\}
 \end{aligned}$$

$$\begin{aligned}
 x - 2 &\geq 0 \rightarrow x \geq 2 \\
 x - \sqrt{x-2} &\geq 0 \rightarrow \sqrt{x-2} \leq x \rightarrow -1 \leq x \leq 11 \\
 x - \sqrt{x-2} &\geq 0 \rightarrow \sqrt{x-2} \leq x \rightarrow -9 \leq x-2 \leq 11 \rightarrow [-7, 11] \rightarrow [2, 11]
 \end{aligned}$$

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$$x - y \geq 0 \quad x \leq y \quad x \leq y - \sqrt{x} \leq y \quad D_f = [-\sqrt{x}, \sqrt{x}]$$

(2) ✓

$$x|y-1| \geq 0 \quad x|y| \geq 1 \quad |y| \geq 1 \quad x > y \quad D_f = (-\infty, -\frac{1}{y}] \cup [\frac{1}{y}, +\infty)$$

$$|x| - y \neq 0 \quad |x| \neq y \quad -y \neq x \neq y \quad D_f = \mathbb{R} - \{\pm y\} \quad R^+ \text{ شامل صفر نیست}$$

$$\sqrt{x} \rightarrow x \in \mathbb{R}$$

$$D_f = [0, +\infty) - \{y\}$$

1, 1/2

$$\sqrt{x} - y \neq 0 \quad \sqrt{x} \neq y \quad x \neq y \quad D_f = \mathbb{R} - \{y\} \quad D_f = \mathbb{R} - \{y\}$$

$x > 0$

$$x \cos x - 1 \neq 0 \quad x \cos x \neq 1 \quad \cos x \neq \frac{1}{x} \quad D_f = \mathbb{R} - \left\{ \frac{2k\pi + \pi}{2}, \frac{2k\pi - \pi}{2} \right\}$$

$$x \sin x + 1 \neq 0 \quad \sin x \neq -\frac{1}{x} \quad D_f = \mathbb{R} - \left\{ \frac{2k\pi - \pi}{2}, \frac{2k\pi + \pi}{2} \right\}$$

$$\cot x - 1 \neq 0 \quad \cot x \neq 1 \quad \cos x \neq 0 \quad D_f = \mathbb{R} - \left\{ \frac{k\pi}{2}, k\pi + \frac{\pi}{2} \right\}$$

$$x \sin x - y \neq 0 \quad \sin x \neq \frac{y}{x} \quad \sin x \neq \pm \sqrt{\frac{y}{x}} \quad D_f = \mathbb{R} - \left\{ \frac{k\pi - \pi}{2}, \frac{k\pi + \pi}{2} \right\}$$

$$|x - y| - \frac{1}{y} > 0 \quad |x - y| > \frac{1}{y} \quad |x - y| > \frac{1}{y} \rightarrow x - y > \frac{1}{y} \rightarrow x > y + \frac{1}{y} \rightarrow x > \frac{y^2 + 1}{y}$$

$$\frac{1/y}{+} \quad \frac{y/y}{-} \quad \frac{y/y}{+} \quad D_f = (y, y + \frac{1}{y}) \cup (-\frac{1}{y}, y)$$

$$x - y|x| \geq 0 \quad x|x| \leq y \quad |x| \leq y \quad -y \leq x \leq y \quad D_f = [-y, y]$$

$$\frac{|x|}{|x|} \geq 0 \quad = \mathbb{R} - \{0\} \quad (2) \checkmark$$