

$$D_f = \{x \in \mathbb{R} \mid -x^2 - 5x - 4 \geq 0\} \rightarrow -x^2 - 5x - 4 \leq 0$$

$$D_f = [-4, -1]$$

$$f(x) = 0 \rightarrow x = -4, -1, 4$$

$$f(2) = 2$$

$$f(4) = 0$$

$$\frac{y}{x} = \left\{ \left(1, 0\right), \left(2, \frac{1}{2}\right), \left(4, 0\right) \right\}$$

$$y = x^3 - 3x^2 + 2x - 1 \rightarrow y = (x-1)^2(x+1)$$

$$R = \mathbb{R}$$

$$y-1 = (x-1)^3 \rightarrow x-1 = \sqrt[3]{y-1} \rightarrow x = \sqrt[3]{y-1} + 1$$

$$y = x^2 - 2x + 1 \rightarrow y = (x-1)^2$$

$$\Delta \geq 0 \rightarrow 4x^2 - 4(-x) \geq 0 \rightarrow 4x^2 + 4x \geq 0$$

$$x(x+1) \geq 0$$

$$R = (-\infty, -1] \cup [0, +\infty)$$

$$\text{الف) طول کتبی: } \frac{b}{a} \rightarrow \frac{4}{2} = 2$$

$$2 \times 2 - 4 \times 2 + 1 = 4$$

$$R = [4, +\infty)$$

$$\text{ب) طول کتبی: } \frac{b}{a} = 2$$

$$-9 + 11 + 3 = 5$$

$$R = (-\infty, 12]$$

$$2) \frac{4}{2} = 2$$

$$x^2 - 11x + 3 = -7 \rightarrow \sqrt{[-7, +\infty)}$$

$$[0, +\infty)$$

$$3) \frac{-4}{-2} = 2$$

$$-9 + 11 = 2$$

$$\sqrt{(-\infty, 2]}$$

$$[0, 2]$$

$$\text{الف) } R = \mathbb{R}$$

$$\text{ب) } R = \mathbb{R}$$

$$\text{ج) } R = \mathbb{R} \rightarrow R = [0, +\infty)$$

$$\text{د) } R = (\mathbb{R})^2 \rightarrow R = [0, +\infty)$$

$$\text{الف) } R = \mathbb{R} - \{3\}$$

$$\text{ب) } R = \mathbb{R} - \{2\}$$

Lenovo

توابع و خواص آنها

سیانامی

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$$x - \sqrt{x-1} + x + \sqrt{x-1} + 2\sqrt{x^2 - 13x + 4} = 2x + 2\sqrt{x-1}$$

$$2x + 2\sqrt{x-1} \sim 2x + 2\sqrt{x-1} = 2x - 14 \xrightarrow{\text{با دو طرف 2 ضرب}} \sqrt{x-1} = x - 7$$

$$\frac{a+b}{c} = 7 \quad \frac{0+2}{-2} = \left(-\frac{1}{2}\right)$$

$$\alpha = 0, \quad b = 2, \quad c = -2$$

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$$D_f = \{R - \frac{1}{2}, 1\}$$

$$\frac{y}{x} = \left\{ \left(\frac{1}{2}, \frac{1}{2} \right), (0, 1) \right\}$$

$$g(x) = 1, \quad f(x) = -2, \quad g(x) = \frac{1}{2}, \quad f(x) = \frac{1}{2}$$

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$$f(x) = \left\{ \left(\frac{1}{2}, 1 \right), \left(\frac{1}{2}, -1 \right), (1, 2), \left(-\frac{1}{2}, 1 \right) \right\}$$

$$x = 1 \rightarrow y = 1, \quad x = -1 \rightarrow y = 1, \quad x = \frac{1}{2} \rightarrow y = 2, \quad x = -\frac{1}{2} \rightarrow y = 1$$

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$$f(x) = \left\{ (1, 2), (-1, 2), (\sqrt{2}, -1), (-\sqrt{2}, -1), (2, 2), (-2, 2) \right\}$$

$$x = 1 \rightarrow y = 2, \quad x = -1 \rightarrow y = 2, \quad x = \sqrt{2} \rightarrow y = -1, \quad x = -\sqrt{2} \rightarrow y = -1, \quad x = 2 \rightarrow y = 2, \quad x = -2 \rightarrow y = 2$$

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$$f(x) + 1 = \left\{ (2, 9), (1, 3), (3, 9), (-1, 9) \right\}$$

$$f(x) = \left\{ (1, -3), (3, -1) \right\}$$

$$f(x) = \left\{ (1, -3), (3, -1) \right\}$$

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$$h = \left\{ (2, 5), (3, 5), (-2, 4) \right\}$$

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$$D_f \cap D_g = \{x \mid g(x) \neq 0\} \rightarrow [0, 3] - \{2\} - \{x - 2\} \sim \{1, 2, 3\}$$

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$$D_f = \{x \mid x > 0\} \rightarrow x > 0 \rightarrow x^2 - 3x < 0 \rightarrow x(x-3) < 0$$

$$x \neq 2$$

$$D_f = [0, 3]$$

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$$D_g = \mathbb{R}$$

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$$g(x) \neq -1 \sim x \in \mathbb{R} - \{2\}$$

