

۲. آزمون علی نوستر

نام و نام خانوادگی: علیرضا ایتنی عسری پاسخنامه تشریحی تکلیف شماره ۷ ... کلاس ۱۳ ... بازدهم B

$$f(x) = \sqrt{x-4} + 4\sqrt{x-4} + 4 = \sqrt{(\sqrt{x-4} + 2)^2} = |\sqrt{x-4} + 2| = \sqrt{x-4} + 2$$

$$g(x) = \sqrt{x-4} - 4\sqrt{x-4} + 4 = \sqrt{(\sqrt{x-4} - 2)^2} = |\sqrt{x-4} - 2| = \sqrt{x-4} - 2$$

$x \geq 4 \rightarrow \sqrt{x-4} \geq 2$

$$f(x) + g(x) = 2\sqrt{x-4} \rightarrow \begin{matrix} a=0 \\ b=2 \\ c=-4 \end{matrix} \Rightarrow \frac{a+b}{c} = \frac{0+2}{-4} = -\frac{1}{2}$$

$$\frac{g}{f} = \left\{ \left(2, -\frac{1}{4}\right), \left(1, \frac{5}{0}\right), \left(3, \frac{5}{0}\right), (0, 4) \right\} = \left\{ \left(2, -\frac{1}{4}\right), (0, 4) \right\}$$

$$f(x^2) = \{(-1, 2), (1, 2), (\sqrt{3}, -1), (-\sqrt{3}, -1), (2, 2), (-2, 2)\}$$

$$f(x) = \left\{ \left(\frac{1}{4}, 2\right), \left(\frac{3}{4}, -1\right), (2, 2), \left(-\frac{1}{4}, 4\right) \right\}$$

$$\frac{2f}{g} = \{(1, -4), (3, -1)\}$$

$$2g(x) + 1 = \{(-2, 19), (1, 3), (3, 9), (-1, 1)\}$$

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

$$D\left(\frac{f}{g+1}\right) = D_g \cap D_f - \{\text{ریشه مخرج}\}$$

$$D_g = \mathbb{R}, g(x) \neq -1 \Rightarrow [x] + [-x] \neq -1 \Rightarrow x \notin \mathbb{Z}$$

$$f(x) = \frac{\sqrt{3x} - x}{9x - 2}$$

$$3x \geq 0 \rightarrow x \geq 0$$

$$\sqrt{3x} - x \geq 0 \rightarrow x^2 \leq 3x \rightarrow \frac{0}{0} - \frac{0}{0} \rightarrow 0 \leq x \leq 3$$

$$9x - 2 \neq 0 \Rightarrow x \neq \frac{2}{9}$$

$$D\left(\frac{f}{g+1}\right) = \{0, 1, 3\}$$

$$h(x) = \frac{f(x)}{g(x)} = \left\{ (1,0), (4,0), (2, \frac{\sqrt{2}}{2}) \right\} \quad \text{د}$$

$$y = \frac{1}{x^2 - 2x} \rightarrow y = \frac{1}{x^2 - 2x + 1 - 1} \rightarrow \text{ب}$$

$$y = \frac{1}{(x-1)^2 - 1} \rightarrow y((x-1)^2 - 1) = 1 \Rightarrow$$

$$(x-1)^2 - 1 = \frac{1}{y} \rightarrow (x-1)^2 = \frac{y+1}{y} \Rightarrow \text{جذر}$$

$$x = \sqrt{\frac{y+1}{y}} + 1 \rightarrow R_y = (-\infty, -1] \cup (0, +\infty)$$

$$y = x^3 - 3x^2 + 3x - 1 + 1$$

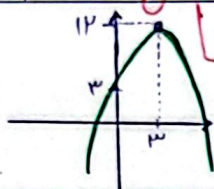
$$y = (x-1)^3 + 1 \rightarrow y-1 = (x-1)^3$$

$$x = \sqrt[3]{y-1} + 1 \rightarrow R_y = \mathbb{R}$$

ی واحد و دیتی ندارند.

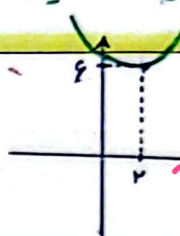
$$y = -x^2 + 4x + 3$$

$$\max |_{12} \Rightarrow R_y = (-\infty, 7]$$



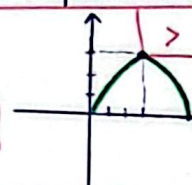
$$y = x^2 - 4x + 10$$

$$\min |_{4} \Rightarrow R_y = [4, +\infty)$$



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

$$\max |_{9} \Rightarrow R_y = \sqrt{-\infty} = [0, 2]$$



$$y = \sqrt{x^2 - 4x - 3}$$

$$\min |_{-v} \Rightarrow R_y = \sqrt{-\infty} = [0, +\infty)$$

$$y = x^3 - 4x^2 + 3x + 2$$

$$\text{بزرگترین توان} \Rightarrow R_y = \mathbb{R}$$

$$y = x^3 - 5x^2 + 2x + 1$$

$$\text{بزرگترین توان} \Rightarrow R_y = \mathbb{R}$$

$$y = (x^2 - 4x + 3x + 1)^2$$

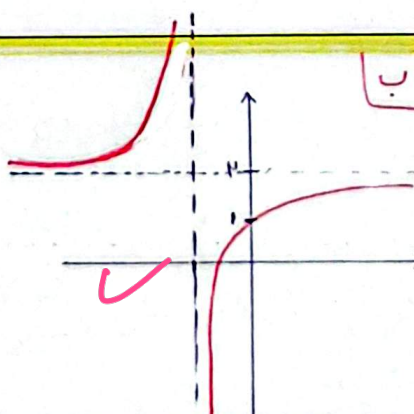
$$R_y = (\mathbb{R})^2 = [0, +\infty)$$

$$y = \sqrt{x^2 - 4x + 5x + 1}$$

$$\text{بزرگترین توان} \Rightarrow R_y = \sqrt{\mathbb{R}} = [0, +\infty)$$

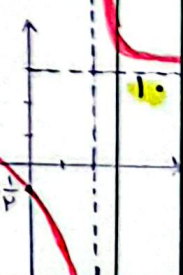
$$y = \frac{2x+1}{x+1}$$

$$R_y = \mathbb{R} - \{2\}$$



$$y = \frac{3x+1}{x-2}$$

$$R_y = \mathbb{R} - \left\{ \frac{a}{c} \right\} = \mathbb{R} - \{3\}$$



بزرگترین توان