

SUBJECT

Year:

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تعداد
صفحات

۱۸،۲۵

رضا باب نویسی

$\sqrt{5} < y < \sqrt{9} \rightarrow 0 < y < 3$

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

$$x = -\frac{(-4)}{2} = 2$$

نکته

$(4, 2)$ ← جواب اول

ب) $y = -x^2 + 4x + 4$ $2x - \frac{y}{2} = 1 \Rightarrow y = 4x - 2$

ج) $y = \sqrt{x^2 - 4x + 4}$ $x = 1$ $2x^2 - 4x - 3 > 0 \Rightarrow x < -1$ $(-1, 2)$

الف) $R = \{x \mid x \text{ اول است}\}$

ب) $R = \{x \mid x \text{ زوج است}\}$

۲) $\sqrt{R} = R$ $\Rightarrow R = \{0, 2, 4, 6, 8, \dots\}$

۳) $\frac{1}{x} + \frac{1}{x^2} = 1$ $\Rightarrow x^2 + x - 1 = 0$ $\Rightarrow x = \frac{-1 \pm \sqrt{5}}{2}$

۴) $R = \{x \mid x \text{ اول است}\}$ $a = 1$ $c = 1$ $\frac{a}{c} = 1$ $y = \frac{x^2 + 1}{x - 1}$

۵) $R = \{x \mid x \text{ اول است}\}$ $a = 2$ $c = 1$ $\frac{a}{c} = 2$ $y = \frac{2x^2 + 1}{x - 1}$



Senobar

مرکز

$$h(x) = f(x) \circ g(x) \rightarrow D_f \cap D_g = \{x, y\}$$

$$x = t \rightarrow h(x) = f(x) \circ g(x) = f(x) + 4 = 4 \rightarrow f(x) = 0$$

$$x = t \rightarrow h(x) = f(x) \circ g(x) = f(x) + 4 = 4 \rightarrow f(x) = 0$$

$$x = -1 \rightarrow h(x) = f(x) \circ g(x) = f(x) + 4 = 4 \rightarrow f(x) = 0$$

$$h = \{(1, 0), (2, 4)\}$$

$$Df \rightarrow v \in [0, 1], u \in \mathbb{R} \quad D_f = [0, 1] \cup (2, 3]$$

$$\sqrt{x_n} - n \geq 0 \rightarrow \sqrt{x_n} \geq n \rightarrow x_n \geq n^2$$

$$Dh = \{0, 1, 2, 3, 4\} \rightarrow x \in \mathbb{Z}, x \neq 1 \rightarrow x \in \mathbb{Z} \setminus \{1\}$$

$$f(x) = \sqrt{x} \quad x = 1 \rightarrow f(1) = 1$$

$$h(x) = \frac{f(x)}{g(x)} \quad (x-1)(x^2-x) = 0 \rightarrow x = 1, x = 0$$

$$x = 1 \rightarrow h(1) = \frac{f(1)}{g(1)} = \frac{1}{0} \rightarrow \text{undefined}$$

$$x = 0 \rightarrow h(0) = \frac{f(0)}{g(0)} = \frac{0}{0} \rightarrow \text{undefined}$$

$$f(x) = \sqrt{x} \quad x = 1 \rightarrow f(1) = 1$$

$$x = 1 \rightarrow f(1) = 1$$

$$x = 1 \rightarrow f(1) = 1$$

مرکز

مرکز

دعوت ۱

$$u = \sqrt{x-1}$$

دعوت ۲

دعوت ۳

دعوت ۴

$$x = u^2 + 1$$

(۱)

$$f(x) = \sqrt{u^2 + 1} + \frac{1}{u} \quad \sqrt{(u+1)^2} = |u+1| = u+1 = \sqrt{x-1} + 1$$

$$g(x) = \sqrt{u^2 + 1} + \frac{1}{u} = \sqrt{(u-1)^2} = |u-1| = u-1 = \sqrt{x-1} - 1$$

$$\frac{a}{b} = \frac{c}{d} \quad c = -1 \quad \frac{a}{b} = \frac{-1}{1} = -1 \quad \text{پس } \frac{a}{b} = -1$$

$$f(x) = \frac{x+1}{x^2-2x+3} \quad g = \{f(x)\}$$

(۲)

$$\frac{g}{f} = \left[0, 1, 2, 3\right] \quad x^2 - 2x + 3 = (x-1)(x-2) \quad x \neq 1, 2$$

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

نقطه برخورد دایره و خط

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

$$g(x) = \left[(-2, 3), (1, -1), (2, 2), (3, 1)\right]$$

(۳)

$$f(x) = \left[(1, 2), (2, 1), (3, 2), (4, 1)\right]$$

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$$f(x) = \left[(1, 2), (2, 1), (3, 2), (4, 1)\right]$$

$$f(x) = \left[(1, 2), (\sqrt{3}, -1), (2, 2), (1, 2)\right]$$

$$f(x) = -x = -2 \quad x^2 + 1 = 1 \quad x = 0$$

$$x = 1 \quad x^2 + 1 = 2 \quad x = 1$$

$$x = 2 \quad x^2 + 1 = 5 \quad x = 2$$

$$x = -1 \quad x^2 + 1 = 2 \quad x = -1$$

$$x^2 = 4 \rightarrow x = \pm 2$$

$$x^2 = 1 \rightarrow x = \pm 1$$

$$x^2 = 4 \rightarrow x = \pm 2$$

$$x = 1 \quad f(1) = 1 \quad g(1) = -1$$

$$f(x) = -x \quad g(x) = 1$$

$$x = 2 \quad f(2) = -2 \quad g(2) = 2$$

$$x = 1 \quad f(1) = -1 \quad g(1) = 1$$

$$x = -1 \quad f(-1) = 1 \quad g(-1) = -1$$

$$f(x) = \left[(-2, 2), (-1, 1), (\sqrt{3}, -1), (2, 2), (1, 1)\right]$$

$$f(2n) = \left\{ \left(\frac{1}{2}, 2\right) \left(\frac{\sqrt{2}}{2}, -1\right) (2, 2) \left(-\frac{1}{2}, 4\right) \right\} \quad \text{ن های } f \text{ باید مقیم بر ۲ شوند!} \quad (۳)$$

$$f(\sqrt{2}) = \left\{ (1, 2) (-1, 2) (\sqrt{2}, -1) (-\sqrt{2}, -1) (2, 2) (-2, 2) \right\} \quad \text{هر کدام از } n \text{ های } f \text{ را برابر } \sqrt{2} \text{ قرار دهیم!}$$

$$f(g(n)+1) = \left\{ (-2, 19) (1, 3) (3, 9) (-1, 1) \right\} \quad \text{این عمل روی و های و اعمال می شود!}$$

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

$$f(n) = \frac{\sqrt{\sqrt{3n} - n}}{n-2} \rightarrow \begin{cases} n \neq 2 \\ n \geq 0 \end{cases} (\sqrt{3n}) \rightarrow D_f = [0, 3] - \{2\} \quad (۵)$$

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

$$g(n)+1 \neq 0 \rightarrow g(n) \neq -1 \rightarrow [n] + [-n] \neq -1 \rightarrow n \in \mathbb{Z}$$

$$D_{\frac{f}{g+1}} = \left\{ D_f \cap D_g, g(n) \neq -1 \right\} = \left\{ 0, 1, 3 \right\}$$

$[0, 3] - \{2\} \cap \mathbb{Z}$

$$(الف) \quad y = n^3 - 2n^2 + 2n - 1 + 1 = y = (n-1)^3 + 1 \quad (۷)$$

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

$$R_f = \mathbb{R}$$

$$(ب) \quad y = \frac{1}{n^2 - 2n} \rightarrow n^2 y - 2n y = 1 \rightarrow n^2 y - 2n y - 1 = 0$$

$$\underline{y \neq 0} \rightarrow n = \frac{2y \pm \sqrt{4y^2 + 4y}}{2y} \rightarrow 4y(y+1) \geq 0 \rightarrow \frac{-1}{+} \leq \frac{0}{+}$$

$$\underline{y = 0} \rightarrow 0 = 1 \quad \text{صحتی وجود ندارد!} \quad \rightarrow R_f = (-\infty, -1] \cup (0, +\infty)$$