

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

$$x_1 = x_2$$

$$y_1^3 - 2x_1^2 = 2x_1 - 1$$

$$y_2^3 - 2x_2^2 = 2x_2 - 1$$

$$\therefore y_1^3 = y_2^3 \rightarrow y_1 = y_2 = 0$$

$$(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2) = 0$$

$$\therefore y_1 = y_2 \quad (y_1 + \frac{y_2}{2})^2 + \frac{3}{4} y_2^2 = 0$$

$$\therefore y_1 = y_2 = 0$$

تابع است

$$1) \quad x \cos y = y \cos x$$

$$x = \frac{\pi}{2} \Rightarrow \text{مثال نقض} \quad \frac{\pi}{2} \cos y = 0 \Rightarrow y = (k\pi + \frac{\pi}{2})$$

تابع نیست

$$2) \quad \frac{x+y}{2} = \sqrt{xy} \quad x, y > 0$$

$$x+y-2\sqrt{xy} = 0 \rightarrow (\sqrt{x}-\sqrt{y})^2 = 0 \rightarrow x=y$$

$$1) \quad xy^2 + 2x - y^2 - 2y = 0$$

$$x(y^2+2) - y(y^2+2) = 0 \rightarrow (x-y)(y^2+2) = 0$$

$$+0/90^\circ \rightarrow x=y$$

$$x=y$$

تابع است

$$الف) \quad |y| + x^2 = 2y$$

$$y + x^2 = 2y \quad y > 0$$

$$x^2 = y \quad y < 0$$

$$x^2 = y \rightarrow \sqrt{y}$$

$$\therefore y = \frac{x^2}{2} \rightarrow \text{مثال نقض}$$

تابع است

$$1) \quad [y] + [x] = 1$$

$$\text{مثال نقض} \quad x=0 \quad [y]=1$$

$$\therefore y = [1, 2)$$

تابع نیست

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سوال ۳

$$f(x) = \begin{cases} 2x^2 - b & |x-1| \geq 2 \\ a+2x & 0 \leq x \leq 3 \end{cases} \rightarrow \begin{cases} 2x^2 - b & x \geq 3 \\ a+2x & 0 \leq x \leq 3 \\ 2x^2 - b & x \leq -1 \end{cases}$$

$$x=3 \rightarrow 2x^2 - b = a+4 \rightarrow 12 = a+b$$

$$f(x) = \sqrt{a-bx-x^2}, D=[b,a] \quad a+b=? \quad \text{سوال ۴}$$

$a \neq 0 \quad b \in \mathbb{Z}$

$$x=a \rightarrow a-ba-a^2=0 \quad \{ \quad a(1-b-a)=0$$

$$x=b \rightarrow a-b^2-b^2=0$$

$$\{ \quad a-2b^2=0$$

$$\downarrow \quad \downarrow$$

$$a=0 \quad b+a=1$$

$$\downarrow \quad a=1-b \quad \textcircled{x}$$

$$\textcircled{x} \rightarrow -b+1-2b^2=0$$

$$-b^2-b+1 \quad \{ \quad b=-1 \rightarrow a=1-(-1)=2$$

$$b = \frac{1}{2} = -\frac{c}{a}$$

$$a+b=2-1=1$$

$$y = \frac{2}{x} \quad D = (-\infty, 2)$$

$$\sqrt{ax^2+bx+c}$$

بسط با هم

$$x=2$$

$$bx+c=2b+c=0$$

$$a=0 \quad -\infty < x < \infty \quad b \leq 0 \quad c = -2b$$

$$2a+c-3|b|=?$$

جواب ب

$$2a+c-3(-b)=? \rightarrow -2b+3b=b$$

$$y = \sqrt{\frac{2x+2}{x+b}} + a$$

$$\rightarrow 2+b=0$$

$$b=-2$$

$$D=(2, +\infty)$$

$$b=7$$

بسط

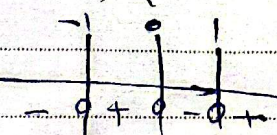
با قسمة بازنه تقسیم می شود

درجه اول قوی تر است

سوال ۶

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

$$x^3-x \geq 0 \rightarrow x(x^2-1) = x(x-1)(x+1)$$



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

Arman

$$\rightarrow y = \frac{1}{\sqrt{|x|-1}}$$

$$|x| > 1$$

$$x < -1$$

$$x > 1$$

$$D = (-\infty, -1) \cup (1, +\infty)$$

$$y = \sqrt[3]{\frac{1}{|x| - [x]}}$$

$$|x| - [x] \neq 0$$

فقط اعداد صحيحة

$$R - W = 0$$

سوال 1

$$\rightarrow \sqrt{x} + \sqrt{y} = 9 \quad x \geq 0 \quad y \geq 0$$

$$\sqrt{y} = 9 - \sqrt{x}$$

$$9 - \sqrt{x} \geq 0 \rightarrow 1 \geq x \quad D = 0 \leq x \leq 1$$

$$y = \frac{1}{\sqrt{\left[2x - \frac{1}{x}\right] + \left[2x + \frac{3}{x}\right]}}$$

$$\left[2x - \frac{1}{x} + 1 + \frac{1}{x}\right] + \left[2x + \frac{3}{x}\right] \geq 0$$

$$2\left[2x + \frac{3}{x}\right] - 1 \geq 0$$

$$\left[2x + \frac{3}{x}\right] \geq \frac{1}{2}$$

$$2x + \frac{3}{x} \geq \frac{1}{2}$$

$$2x \geq \frac{1}{2} - \frac{3}{x} + \frac{1}{x}$$

$$x \geq \frac{1}{4}$$

سوال 9

$$y = \sqrt{1 - \log_2(2x - a)}$$

$$D = (b, c]$$

سوال 10

$$1 - \log_2(2x - a) \geq 0$$

$$x = c$$

$$c - b = ?$$

$$x = b$$

$$\log_{10} 2x - a \leq 1$$

$$2x - a \leq 10$$

$$2c - a \leq 10 \rightarrow c \leq \frac{10 + a}{2}$$

$$2b - a = 0 \rightarrow b = \frac{a}{2}$$

$$c - b = \frac{10 + a}{2} - \frac{a}{2} = 5$$