

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

$$\left. \begin{matrix} x_1, y_1 \\ x_2, y_2 \end{matrix} \right\} x_1 = x_2 \rightarrow y_1 = y_2$$

$$y_1''' = 2x^2 + 2x - 1$$

$$\left. \begin{matrix} y_1''' = 2x^2 + 2x - 1 \\ y_2''' = 2x^2 + 2x - 1 \end{matrix} \right\} y_1''' = y_2''' \rightarrow y_1 = y_2$$

تقریب ← تابع هست

$$\rightarrow) u \cos y = y \cos u \quad \frac{u = \frac{M}{y}}{\rightarrow} \quad \frac{M}{y} \cos y = y \cos \frac{M}{y} \rightarrow \frac{M}{y} \cos y = 0 \rightarrow \cos y = 0 \rightarrow y = k\pi + \frac{\pi}{2}$$

تابع نیست ← شان نقض

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

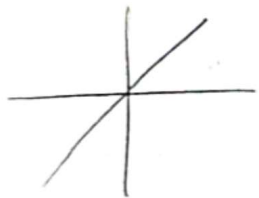
$$(x-y)^2 = 0 \rightarrow x = y \rightarrow$$



رسم

تابع هست ← همانی

$$>) x y^2 + 2x - y^3 - 2y = 0 \rightarrow x y^2 + 2x = y^3 + 2y \rightarrow x(y^2 + 2) = y(y^2 + 2) \rightarrow x = y$$



رسم

تابع هست ← همانی

-۲

$$\underbrace{|y|}_{+} + \underbrace{2y^2}_{+} = 2y \rightarrow \underbrace{+ \text{مقادیر مثبت}}_{\text{مثبت}} \rightarrow y > 0 \rightarrow y + 2y^2 = 2y \rightarrow y = 2y^2 \text{ تابع هسست}$$



۱) $[y] + [2] = 1 \xrightarrow{x=0} y \in [1, 2)$ برای y محدود می‌دهد تابع نیست

$$\left\{ \begin{array}{ll} 2x^2 - b & x-1 \geq 2 \rightarrow x \geq 3 \\ a+2x & 0 \leq x \leq 3 \\ 2x^2 - b & x-1 \leq -2 \rightarrow x \leq -1 \end{array} \right\} \xrightarrow{x=3} 2x^2 - b = a + 2x \rightarrow 18 - b = a + 6 \rightarrow a + b = 12$$

-۳

$$\sqrt{-2x^2 - bx + a} \rightarrow -2x^2 - bx + a \geq 0 \quad \begin{array}{c|c} b & a \\ \hline - & + \\ \hline + & - \end{array}$$

$$S = a + b = \frac{-(-b)}{-1} = -b \rightarrow a + b = -b \rightarrow a = -2b$$

$$P = ab = \frac{a}{-1} = -a \rightarrow (-2b)b = -(-2b) \rightarrow -2b^2 = 2b \rightarrow 2b^2 + 2b = 0 \rightarrow 2b(b+1) = 0$$

$$b = -1 \rightarrow a = -2b = 2 \checkmark$$

$$b = 0 \rightarrow a = -2b = 0 \quad (a \neq 0) \quad \text{غلط}$$

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

برای اینی

- ۷

$$ax^2 + bx + c > 0$$

$$D_f = (-\infty, 2) \text{ نامشخص برای } x=2$$

$$\rightarrow a=0$$

$$bx + c > 0 \xrightarrow{x=2} b(2) + c > 0 \rightarrow 2b = -c \rightarrow c = -2b$$

$$\frac{2}{+1-} \\ b < 0$$

$$\frac{2a+c}{0} - \frac{2|b|}{-b} \rightarrow -2b + 2b = \boxed{b}$$

- ۹

$$\sqrt{\frac{ax^2}{x+b} + a}$$

$$(2, +\infty)$$

$$x=2 \rightarrow 2+b=0 \rightarrow b=-2$$

- ۷

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

$$\frac{-1}{-1+1-1+}$$

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

$$\therefore y = \frac{1}{\sqrt{|x|-1}} \rightarrow |x|-1 > 0 \rightarrow |x| > 1 \begin{cases} x > 1 \\ x < -1 \end{cases}$$

$$\rightarrow D_f = (-\infty, -1) \cup (1, +\infty)$$

- ۸

$$\omega) \sqrt[3]{\frac{1}{|x| - [x]}}$$

$$\rightarrow |x| - [x] = 0 \rightarrow |x| = [x] \rightarrow x \in \mathbb{Z} \rightarrow |x| = x \rightarrow x \in \mathbb{N}$$

$$D_f = \mathbb{R} - \mathbb{N}$$

$$\therefore \sqrt{x} + \sqrt{y} = 9 \rightarrow \sqrt{y} = 9 - \sqrt{x} \rightarrow 9 - \sqrt{x} \geq 0 \rightarrow 9 \geq \sqrt{x} \rightarrow 81 \geq x$$

$$D = [0, 81]$$

(این نیز به اصل تابع بستگی دارد)

$$\underbrace{[x_2 - \frac{1}{p}] + [x_2 + \frac{p}{p} - x + x]}_{[x_2 - \frac{1}{p}] + x} \rightarrow x[x_2 - \frac{1}{p}] + x > 0 \rightarrow \underbrace{[x_2 - \frac{1}{p}]}_{\text{صحيح}} > -1 \quad -9$$

$$[x_2 - \frac{1}{p}] \geq 0 \rightarrow x_2 - \frac{1}{p} \geq 0 \rightarrow x_2 \geq \frac{1}{p} \rightarrow x \geq \frac{1}{p} \quad Df = [\frac{1}{p}, +\infty)$$

-10

$$\sqrt{1 - \log_{1.} x_2 - a} \quad (b, c] \quad x_2 - a > 0 \rightarrow x_2 > a \rightarrow x > \frac{a}{p}$$

$$1 - \log_{1.} x_2 - a \geq 0 \rightarrow 1 \geq \log_{1.} x_2 - a \rightarrow 1 + a \geq x_2 - a \rightarrow x_2 \leq 1 + a \rightarrow x \leq \frac{1+a}{p} \rightarrow x \leq a + \frac{a}{p}$$

$$D = (\frac{a}{p}, a + \frac{a}{p})$$

$$c - b = a + \frac{a}{p} - \frac{a}{p} = \boxed{a}$$