

ضریب x^2 و x صفر است.

$$f(x) = x^2 + 2x + 1 + 9x^2 - 4x + 1 + mx^2 + nx + mn$$

$$\Rightarrow 1 + 9 + m = 0 \Rightarrow m = -10, \quad 2 - 4 + n = 0 \Rightarrow n = 2$$

$$g(x) = \{(4, -10), (4, p+1), (p+1, 1), (-9, p+k)\}$$

$$p+1 = -10 \Rightarrow p = -11, \quad 1 = -11 + k \Rightarrow k = 12$$

$$m+n+p+k = (-10) + 2 + (-11) + 12 = -5$$

الف $x^4 - 2x^2 - 8 = (x^2 - 4)(x^2 + 2) \Rightarrow x \neq 2, -2$

ب $\frac{x-2}{x^4 - 2x^2 - 8} = \frac{-2}{-2} + \frac{2}{2} \Rightarrow Df = (2, +\infty) - [2]$

ج $4 = 2[-x] \Rightarrow 2 = [-x] \rightarrow x = [-2, -3]$

$Df = R - [-2, -3]$

الف $x > 0, \quad x(x^2 - 1) = \frac{-1}{-1+1} + \frac{1}{1} \Rightarrow Df = [1, +\infty)$

ب $x \neq 1, -1$

ج $x \geq 2 \rightarrow -x^2 + x - 2 \rightarrow - (x+2)(x-1)$

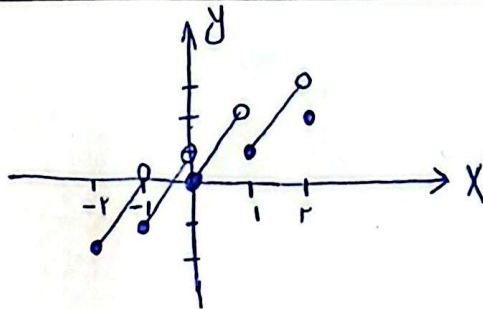
$x \leq 2 \rightarrow -x^2 - x + 2 \rightarrow - (x+2)(x-1)$

$Df = [-2, 1) - [-1]$

برای اینکه معادله ۳ جواب داشته باشد

$$|x-2| - 1 = k \Rightarrow |x-2| = k+1 \Rightarrow \begin{cases} k+1 \\ -k+1 \end{cases} \rightarrow -k+1 = 0 \Rightarrow k = 1$$

$$x-2 = \frac{2}{-1} \Rightarrow x = \begin{cases} 4 \\ 0 \\ 2 \end{cases}$$



$$f(x) = \frac{(x-3)(x-1)}{x+a} + b \rightarrow \text{حالت (1)} \rightarrow a=-1, x-3+b=x \Rightarrow b=3$$

$$a-b = -4$$

$$\text{و حالت (2)} \rightarrow a=-3, x-1+b=x \Rightarrow b=1$$

$$a-b = -3-1 = -4$$

جواب $\leftarrow \{4\}$

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

$$\frac{ax+2}{x+b} \xrightarrow{x=1} \frac{a+2}{b+1} = 3 \Rightarrow a+2 = 3b+3 \rightarrow a = 3b+1$$

$$\xrightarrow{x=2} \frac{-a+2}{b-1} = 1 \Rightarrow -a+2 = b-3 \Rightarrow a = 3-b$$

$$3b+1 = 3-b \Rightarrow 4b = 2 \Rightarrow b = \frac{1}{2}$$

$$a+b = \frac{3}{2} \Delta$$

$$x=1 \rightarrow b-4=0 \Rightarrow b=4$$

$$\hookrightarrow 4-3a=0 \Rightarrow a = \frac{4}{3}$$

$$\left\{ \begin{array}{l} g(x) = \sqrt{4-3x} + 3x \\ g(1) \Rightarrow \sqrt{4-3} + 3 = 4 \Rightarrow k=0 \end{array} \right.$$

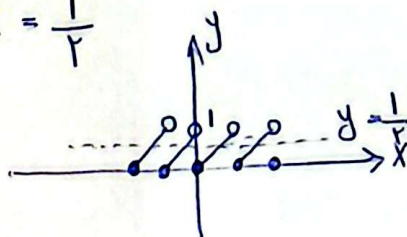
$$3a - \frac{b}{3} - k = 3 \times \left(\frac{4}{3}\right) - \frac{4}{3} - 0 = 2$$

$$2x+2 \geq 0 \Rightarrow x \geq -1, m-x \geq 0 \Rightarrow m \geq x \Rightarrow m=V$$

$$f(x) = \sqrt{V-x} + n, f-g(2) = \sqrt{V} + n - 2\sqrt{V} = 4\sqrt{V} \Rightarrow n = 11\sqrt{V} - 2$$

$$m+n = V + 11\sqrt{V} - 2 = \Delta + 11\sqrt{V}$$

$$y = (x - [x]) = \frac{1}{2}$$



$\Rightarrow$

۲ شماره در ۴ نقطه بگیر و قطع می کنند
۴ شماره ۴ جواب دارد

۱۰