

الف - ٢ ١, ٧, ٨ ١٢ - ٥, ٧, ٨ ١٠

$$f(x) = x^r + 4x^r - 4x^r + mx^r + rx + 1 + 1 \rightarrow 1 \cdot x^r - 4x^r + r \cdot mx^r + mx^r + mn$$

$m = -1 \quad n = 4$

(٢) - ١

$$f(x) = 3x$$

$$g(x) = mn + x + p \quad m = -1 \rightarrow p + 1 = -1 \rightarrow p = -1$$

$$p + x = -1 \rightarrow x = -1 \rightarrow -1 + 4 - 1 = 2 \checkmark$$

$$\frac{x-2}{x^2-2x-1} \quad \frac{x-2}{(x^2-4)(x^2+1)} \quad \frac{-2}{-4} + \frac{2}{4} + \dots \quad D_f = (-2, +\infty) - \{2\}$$

(١, ٧, ٨) - ٢
(الف)

$$\frac{2x^2+1}{x^2-2x-1} = x-2[-x] \neq 0 \rightarrow x \neq [-x] \rightarrow D_f = \mathbb{R} - \{-2, -1\}$$

$[-x] = 2 \rightarrow 2 \leq -x < 3 \rightarrow -3 < x \leq -2$
 $D_f = \mathbb{R} - (-3, -2]$

(ب)

$$f(x) = \frac{\sqrt{x(x^2-1)}}{\sqrt{|x|+x}} \rightarrow x(x^2-1) \geq 0 \quad \frac{-1}{-1} + \frac{1}{-1} + \dots \quad \int \frac{1}{x} dx$$

(الف) - ٣
(٢)

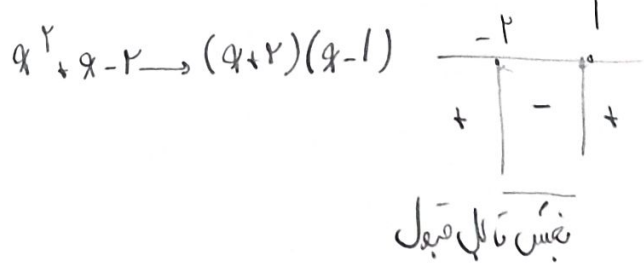
$$|x|+x \geq 0 \rightarrow x \geq 0 \quad D_f = [1, +\infty)$$

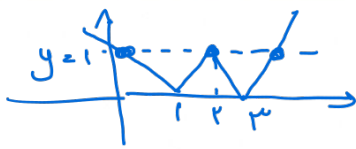
$$f(x) = \frac{\sqrt{|x-2|-x^2}}{|x|-1} \rightarrow |x| \neq 1 \rightarrow x \neq \pm 1$$

(ب)

$$|x-2|-x^2 \geq 0 \rightarrow \begin{cases} \text{موجب} : x-2 \geq x^2 \\ \text{منفي} : 2-x \geq x^2 \end{cases} \quad x^2-x+2 \geq 0 \quad \forall$$

$$D_f = [-2, 1) \cup \{1\}$$





رسم شکل

$$|x-2|-1=k$$

مسئله ۳ عددیست پس

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

$$x \geq k+3 \text{ یا } x \leq -k-1$$

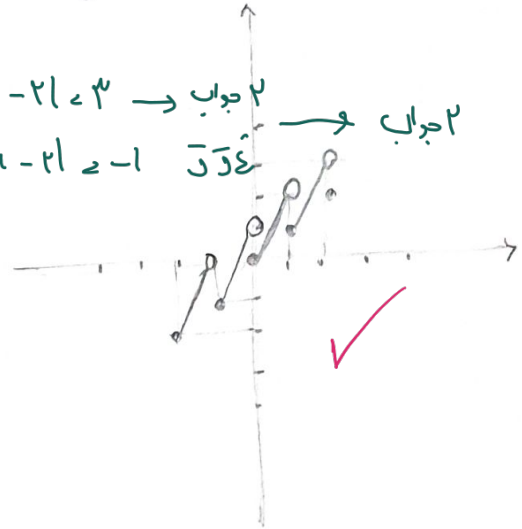
$$|x-2|-1 \leq -k \rightarrow |x-2| \leq 1-k \rightarrow x-2 = 1-k$$

$$x-2 \leq k-1 \rightarrow x \leq k+1 \text{ یا } x \geq 3-k$$

$$3-k \leq k+1 \rightarrow k \geq 1 \rightarrow \begin{cases} |x-2|-1 \leq 2 \rightarrow |x-2| \leq 3 \rightarrow \text{جواب ۲} \\ |x-2|-1 \geq -2 \rightarrow |x-2| \geq -1 \end{cases} \rightarrow \text{جواب ۲}$$

$$P_1 = [-2, 0), [-1, 1), [0, 2), [1, 3), \{2\}$$

$$P_2 = [-2, -1), [-1, 0), [0, 1), [1, 2), \{2\}$$



$$\frac{x^2 - 5x + 3}{x+2} \div b = x \rightarrow \frac{(x-1)(x-3)}{x+2}, b = x$$

$$A_{a=-1} \rightarrow x-3, b=x \rightarrow b=3, a=b-5 \checkmark$$

$$A_{a=3, x-1+b=x} \rightarrow b=1 \rightarrow a=b-5 \rightarrow -5+(-5)=-10 \rightarrow a-b$$

$$\frac{(x^2 + 4x + 4)(x-1)}{(x-1)(x-2)} \rightarrow \frac{(x+2)(x+2)}{x-2}, x+2 \rightarrow g(x) \Rightarrow C=2$$

$$A_{x=1} \rightarrow \frac{a+2}{kb} \rightarrow a+2=kb \rightarrow A_{x=1} \rightarrow \frac{-a+2}{-1+b} \rightarrow a+2=1+b$$

$$a+3=b \rightarrow b=\frac{1}{2} \rightarrow \frac{1}{2} \neq \frac{1}{2} \checkmark$$

$$Df = f'x = f'a \rightarrow f'x \leq f'a \rightarrow x \leq \frac{f'}{f}a$$

$$Dg = b - f'x \rightarrow x \leq \frac{b}{f} \quad \frac{b}{f} > 1, \frac{f'}{f} > 1 \rightarrow a \leq \frac{f}{f'} b = f$$

$$f'x - f' = f'x \rightarrow x = -1 \rightarrow f' \leq \frac{f}{f'} - \frac{f}{f'} + 1 = f' \quad \checkmark$$

$$g(x) = \sqrt{f'x + f}, L(x) = \sqrt{m - x} + n$$

$$D_{L,g} = [-1, 0] \rightarrow D_f \cap D_{L,g} = [-1, 0] \rightarrow f'x + f \leq 0 \rightarrow x \leq -1 \quad m - x \geq 0 \rightarrow m \geq x$$

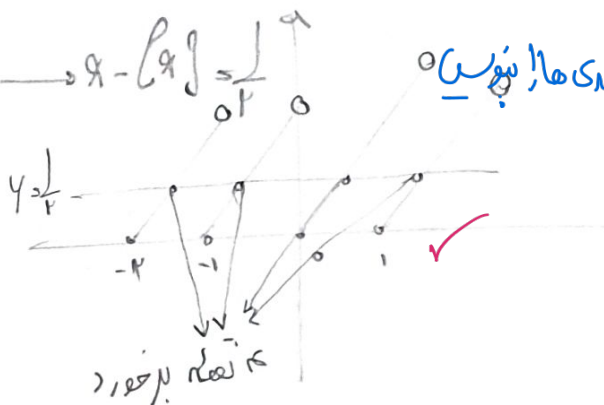
$$m \geq 0 \quad L - g(x) = 4\sqrt{f} \rightarrow f' + 1 - 2\sqrt{f} = 0 \rightarrow \sqrt{f} = \frac{f' + 1}{2} \rightarrow f = \frac{(f' + 1)^2}{4}$$

$$\Rightarrow m, n = 0 + 1\sqrt{f} - 2 = 2\sqrt{f} - 2 \quad \checkmark$$

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

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

$$x - [x]$$



ضابطه ها و بازه بندی ها بنویس

در جواب