

$$\left. \begin{array}{l} x=0 \\ x=1 \end{array} \right\} \begin{array}{l} \text{if} \\ \text{else} \end{array} \rightarrow 1+1+\cancel{x} = \cancel{x} + \cancel{x} + m + \cancel{x} + \cancel{x} \rightarrow m = -10$$

از تابع g $m = p + 1 \rightarrow -10 = p + 1 \rightarrow p = -11$ $m + n + p + k = -7$ خواسته سوال
دری یابیم $p + k = -1 \rightarrow -11 + k = -1 \rightarrow k = 10$

1) $\frac{x-2}{x^2-2x-1} \geq 0$ عبر على ↔ $\frac{x}{y} = \frac{-2}{1} + \frac{2}{1} \rightarrow D_f = (-2, +\infty) - \{2\}$
 $x = \text{Kishan } x-2$
 $\frac{x^2-2x-1}{x^2-2x-1} \rightarrow t^2-2t-1=0 \rightarrow (t-3)(t+1)=0 \rightarrow \begin{cases} t=3 \checkmark \rightarrow x=3 \\ t=-1 \times \rightarrow x=-1 \end{cases}$

ج) $x - 2[-x] \neq 0 \rightarrow [-x] \neq 2 \rightarrow -3 < x \leq -2 \rightarrow$ در این بازه نمی تواند باشد
 $D_f = \mathbb{R} - (-3, 2]$ ✓

الف) $x(x^2-1) \geq 0 \rightarrow \frac{x}{y} \begin{array}{c|c|c|c} + & 0 & - & + \end{array} \rightarrow x \in (-\infty, 0) \cup (1, +\infty) \text{ ②}$

$$|x| + x > 0 \rightarrow |x| > -x \rightarrow x \in (0, +\infty) \textcircled{\text{I}} \xrightarrow{\textcircled{\text{I}} \cap \textcircled{\text{I}}} D_f = (1, +\infty)$$

$$b) |x| \neq 1 \rightarrow x \neq \pm 1 \quad |x-1|-x^2 \geq 0 \rightarrow |x-1| \geq x^2 \begin{cases} x-1 \geq x^2 \\ x-1 \leq -x^2 \end{cases}$$

$$\underline{x^2 - x + 1 \leq 0} \rightarrow \text{X} \quad x^2 + x - 2 \leq 0 \rightarrow \frac{x}{y} + \frac{-2}{p} - \frac{1}{p} + \dots \rightarrow x \in [-2, 1] \rightarrow D_f = [-2, 1] - \{+1\}$$

$$||x-2|-1| \neq K \rightarrow |x-2|-1 \neq \pm K \begin{cases} |x-2| \neq K+1 & \text{I} \\ |x-2| \neq -K+1 & \text{II} \end{cases}$$

$$\textcircled{I} \begin{cases} x-5 \neq K+1 \rightarrow x \neq K+6 \\ x-5 \neq -K-1 \rightarrow x \neq -K+4 \end{cases}$$

$$\textcircled{\text{II}} \begin{cases} x - \gamma \neq -K + 1 \rightarrow x \neq -K + \gamma \\ x - \gamma \neq K - 1 \rightarrow x \neq +K + 1 \end{cases} \begin{cases} -K + \gamma = K + \gamma \rightarrow K = 0 \\ -K + 1 = K + \gamma \rightarrow K = -1 \end{cases}$$

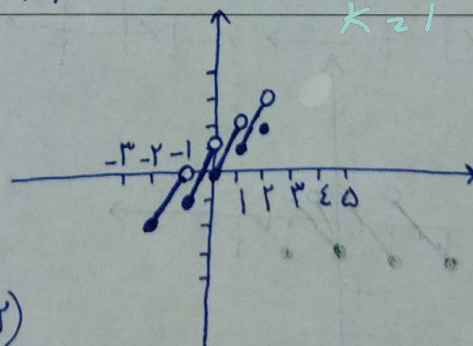
$$-2 \leq x < -1 \rightarrow y = 2x + 2$$

$$-1 \leq x < 0 \rightarrow y = 2x + 1$$

$$0 \leq x < 1 \rightarrow y = \lceil x \rceil$$

$$1 < x < 2 \rightarrow y = 2x - 1$$

$$x=2 \rightarrow y = 2(2) - 2 = 2 \rightarrow (2, 2)$$



چون تابع هپانی است

$$x=1 \rightarrow y=1 \rightarrow \frac{1-\varepsilon+3}{1+a} + b = 1 \rightarrow b=1$$

$$x=0 \rightarrow y=0 \rightarrow \frac{0-0+3}{a} + b = 0 \rightarrow a=-3$$

$a=1, b=3$ در حالت دیگر

$$a-b = -\varepsilon$$

سوال 2

$$x=0 \rightarrow g(0)=f(0) \rightarrow c+0=2 \rightarrow c=2$$

$$x=1 \rightarrow g(1)=f(1) \rightarrow 3 = \frac{a+2}{b+1} \rightarrow 3b-a = -1$$

$$x=-1 \rightarrow g(-1)=f(-1) \rightarrow 1 = \frac{2-a}{b-1} \rightarrow b+a=3$$

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

سوال: $c+b = 2 + \frac{1}{2} = \frac{5}{2}$

چون نقطه برای $x=1$ دارای اشتراک در دامنه هستند پس

$$b - \varepsilon x \geq 0 \rightarrow x \leq \frac{b}{\varepsilon}$$

$$\varepsilon x - 3a \geq 0 \rightarrow \varepsilon x \geq 3a \rightarrow x \geq \frac{3a}{\varepsilon}$$

$$\frac{b}{\varepsilon} = 1 \rightarrow b = \varepsilon \quad \frac{3a}{\varepsilon} = 1 \rightarrow a = \frac{\varepsilon}{3}$$

سوال 3

$$(b, k) \rightarrow 2f - g = 2\sqrt{\varepsilon - \varepsilon + 2k - 2} - \sqrt{\varepsilon - \varepsilon + 3k} = k \rightarrow k = -1$$

$$Df \times g = Df \cap Dg \rightarrow \begin{cases} Dg = 2x+2 \geq 0 \rightarrow x \geq -1 \\ Df = m-x \geq 0 \rightarrow x \leq m \end{cases} \rightarrow \begin{cases} [-1, m] \\ [-1, 7] \end{cases} \rightarrow m=7$$

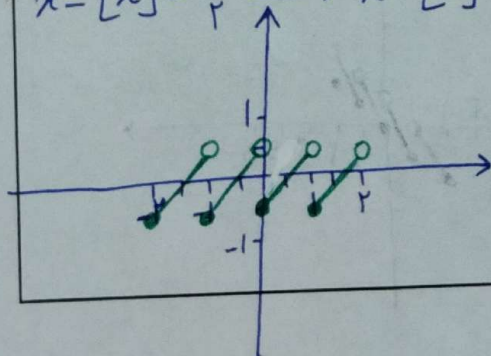
$$f(3) - g(3) = 4\sqrt{2} \rightarrow \sqrt{\varepsilon + n} - \sqrt{8} = 4\sqrt{2} \rightarrow 2 + n - 2\sqrt{2} = 4\sqrt{2}$$

$$n = 8\sqrt{2} - 2$$

سوال: $m+n = 7 + 8\sqrt{2} - 2 = 8\sqrt{2} + 5$

$$x - [x] = \frac{1}{2} \rightarrow x - [x] - \frac{1}{2} = 0 \rightarrow$$

۵ واحد به پایین می ریزم



در بازه $[-2, 2]$ دارای بی شمار جواب است.