

$$f(x) = x^2 + 1 + 2x + 9x^2 + 1 - 9x + mx^2 + nx + mn \xrightarrow{f(x) = t} \begin{matrix} m = -1 \\ n = 4 \end{matrix}$$

$$f(x) = -3x$$

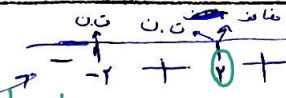
$$g(n) = \{(f, -1), (f, p+1), (p+2, -1), (-9, p+k)\}$$

$$p = -1 \rightarrow p+1 = 0 \rightarrow p = -1$$

$$p+k = -1 \rightarrow -1+k = -1 \rightarrow k = 0$$

$$\therefore m+n+p+k = -1+4-1+0 = -2 \checkmark$$

$$y = \sqrt{\frac{x-2}{x^2-2x-1}} \rightarrow \frac{x-2}{x^2-2x-1} \geq 0$$



دامنه مثبت!

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

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

$$D_f = (-2, +\infty) \quad D_{f'} = (-2, +\infty) - \{2\}$$

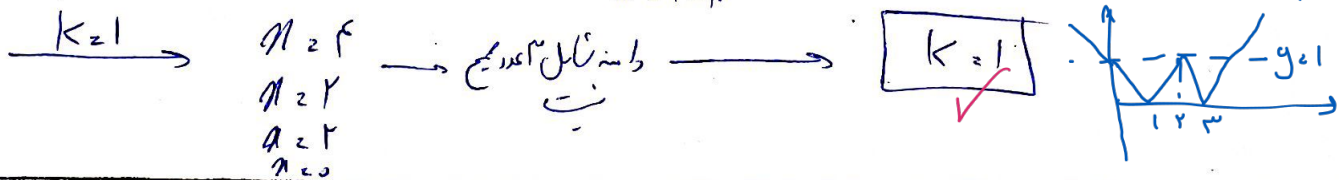
$$f(x) = \frac{2x^2+1}{x^2-2x-1} \rightarrow x^2-2x-1 \neq 0 \rightarrow x \neq 2, x \neq -1 \rightarrow x \in [-2, -1) \cup (2, +\infty)$$

$$f(x) = \sqrt{x(x^2-1)} \rightarrow x(x^2-1) \geq 0 \rightarrow x(x-1)(x+1) \geq 0 \rightarrow [-1, 0] \cup [1, +\infty)$$

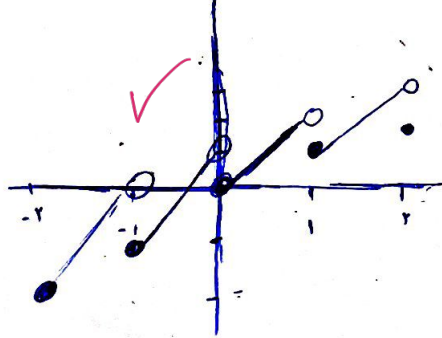
$$\sqrt{|x|+x} \rightarrow \sqrt{|x|+x} \rightarrow |x|+x \geq 0 \rightarrow x \geq 0 \rightarrow (0, +\infty)$$

$$f(x) = \sqrt{\frac{|x-2|-x^2}{|x|-1}} \rightarrow \frac{|x-2|-x^2}{|x|-1} \geq 0 \rightarrow \frac{-x^2-x+2}{|x|-1} \geq 0 \rightarrow D_f = [-2, 1) \cup \{1\}$$

$$\begin{aligned} x \geq 3 &\rightarrow x-3-k \rightarrow x = 3+k \\ 2 \leq x < 3 &\rightarrow 3-x-k \rightarrow x = 3-k \\ 1 \leq x < 2 &\rightarrow x-1-k \rightarrow x = 1+k \\ x < 1 &\rightarrow 1-x-k \rightarrow x = 1-k \end{aligned}$$



$$\begin{aligned} x=2 &\rightarrow 2n-1=2 \\ 1 \leq x < 2 &\rightarrow 2n-1 \\ 0 \leq x < 1 &\rightarrow 2n \\ -1 \leq x < 0 &\rightarrow 2n+1 \\ -2 \leq x < -1 &\rightarrow 2n+2 \end{aligned}$$



$$f(n) = \frac{x^r - rx + r}{x+a} + b \rightarrow \frac{(x-r)(n-1)}{x+a} + b \xrightarrow{f(n) = 0} x$$

$$\begin{aligned} \rightarrow a = -1 \rightarrow b = r \\ \rightarrow a = -r \rightarrow b = 1 \end{aligned} \rightarrow \boxed{a-b = -r}$$

$$D_g = R, D_f = R \rightarrow \frac{a+r}{1+b} \rightarrow b \neq -1, \frac{r-a}{b-1} \rightarrow b \neq 1$$

$$\frac{x \neq \pm 1}{(n-1)(n+1)(n+r)} = n+C \rightarrow \boxed{C=2}$$

$$\frac{a+r}{1+b} = r \rightarrow r+rb = a+r \rightarrow r+1-ra = a+r \rightarrow 1 = 2a \rightarrow \boxed{a=1/2}$$

$$a \frac{r-a}{b-1} = 1 \rightarrow b-1 = r-a \rightarrow b = r-a$$

$$\boxed{b+C, r, a}$$

$$D_{f \circ g} : [-1, \sqrt{2}] \rightarrow f(n) \circ g(n) \rightarrow D_g = [-1, +\infty) \rightarrow D_f = (-\infty, \sqrt{2}]$$

$$D_{f \circ g} = \langle m, n \rangle \rightarrow m = \sqrt{2}$$

$$f(r) \circ g(r) = 9\sqrt{r} \xrightarrow{g(r) = 2\sqrt{r}} f(r) = 2\sqrt{r} \cdot 9\sqrt{r} \rightarrow f(r) = 18\sqrt{r}$$

$$f(n) \sqrt{2-n+n} \rightarrow f(n) = 2+n = 18\sqrt{2} \rightarrow \boxed{n = 18\sqrt{2} - 2}$$

$$\boxed{m+n = 2 + 18\sqrt{2}}$$

$$D_g : b - rn \geq 0 \rightarrow b \geq rn \rightarrow \frac{b}{r} \geq n$$

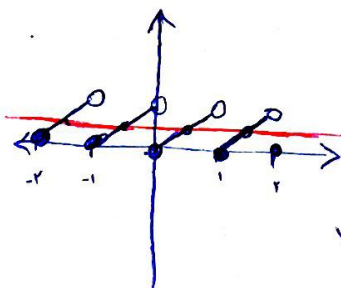
یعنی اشیاء که به f و g می آید

$$D_f : rn - ra \geq 0 \rightarrow rn \geq ra \rightarrow n \geq \frac{r}{a}$$

$$f \circ g = 2(\sqrt{1-1+t-1}) - (t-t+2k) = k$$

$$\rightarrow \frac{b}{r} = 1 \rightarrow \boxed{b=r} \quad \frac{r}{a} = 1 \rightarrow \boxed{a=\frac{r}{r}} \quad 2k - 2 - 2k = k \rightarrow 2k = 2 \rightarrow \boxed{k=1}$$

$$y = 1(n - [n]) = \frac{1}{r} \rightarrow y = n - [n] = \frac{1}{r} \rightarrow \frac{1}{r} = n - [n]$$



$$\begin{aligned} n=2 &\rightarrow 0 \\ 1 \leq n < 2 &\rightarrow n-1 \\ 0 \leq n < 1 &\rightarrow n \\ -1 \leq n < 0 &\rightarrow n+1 \\ -2 \leq n < -1 &\rightarrow n+2 \end{aligned}$$

طبق شکل خط برقرار

قرمز دایره جواب می دهد

م جواب

در بازه [2, 0]

وجود دارد