

$$f(n) = \frac{1}{2} n^r + 1 + n + 9n^r + 1 - 8n + m n^r + 4n + mn$$

$$= \frac{(10+m)}{2} n^r + (n-8)n + 2 + mn \rightarrow n=8, m=-10$$

$$g(n) = \left\{ (8, -10), (8, \frac{p+1}{-10}), (\frac{p+1}{-9}, -1), (-9, p+k) \right\}$$

$$\rightarrow p = -11, p+k = -1 \xrightarrow{p=-11} k = 10$$

$$m+n+p+k = -10 + 8 + (-11) + 10 = -3 \quad \boxed{-3}$$

$$a) \frac{n-8}{(n^r-8)(n^r+8)} = \frac{n-8}{(n-8)(n+8)(n^r+8)} \geq 0$$

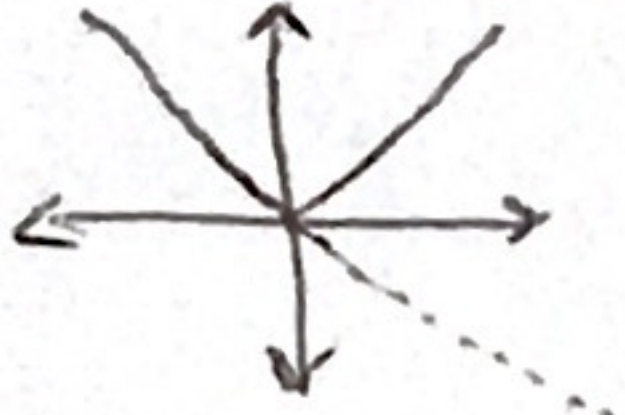
$$\begin{array}{c|cc} n & -8 & 8 \\ \hline p & - & + \end{array}$$

$$D = (-8, +\infty) - \{8\}$$

$$b) 8-8[-n] \neq 0 \rightarrow 8 \neq [-n] \rightarrow 8 \leq -n \leq 8 \rightarrow -8 \geq n \geq -8$$

$$D_f = \mathbb{R} - \{(-8, -8)\}$$

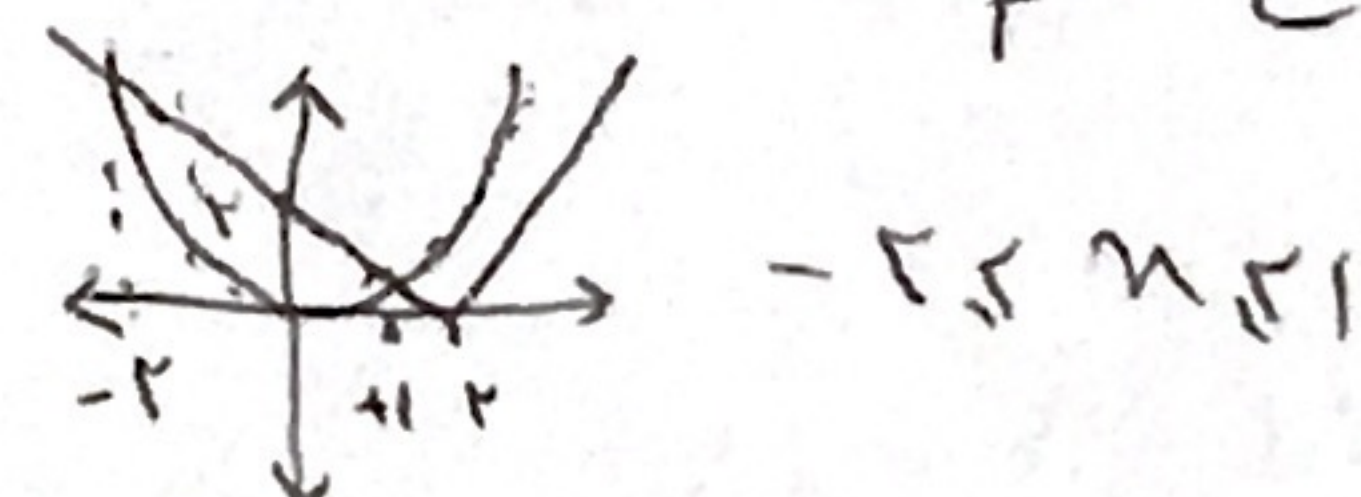
$$a) \begin{cases} I \quad n(n-1)(n+1) \geq 0 \\ II \quad |n| + n > 0 \end{cases}$$



$$-1 + 1 - 1 + \dots$$

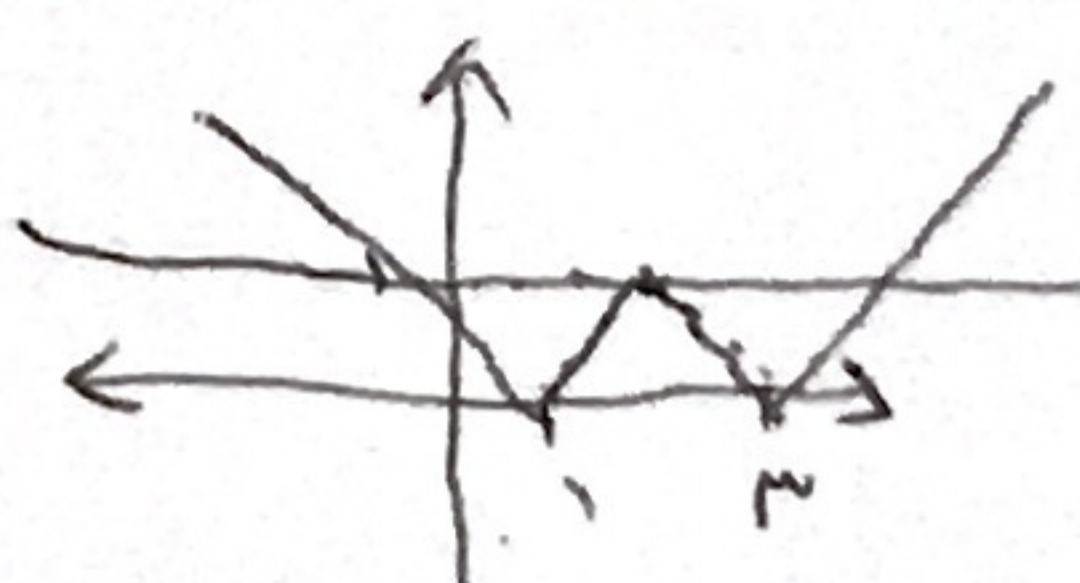
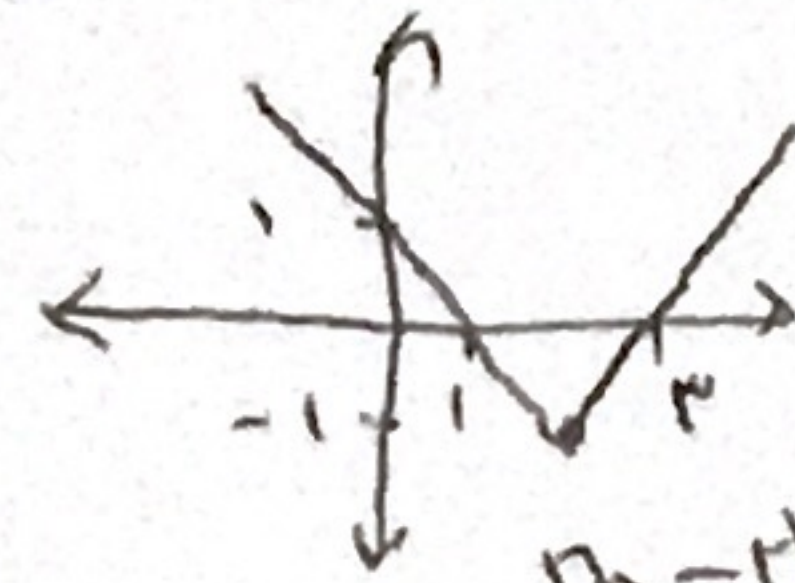
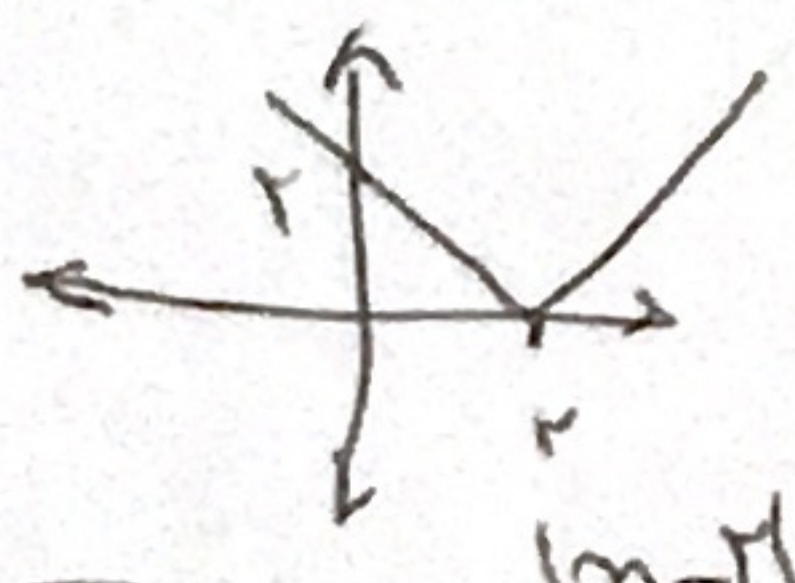
$$I \cap II, D_f = [1, \infty)$$

$$b) \begin{cases} I \quad |n-8| - n^r \geq 0 \rightarrow |n-8| \geq n^r \\ II \quad |n| \neq 1 \rightarrow n \neq 1, -1 \end{cases}$$



$$\rightarrow D_f = [-8, 1) - \{-1\}$$

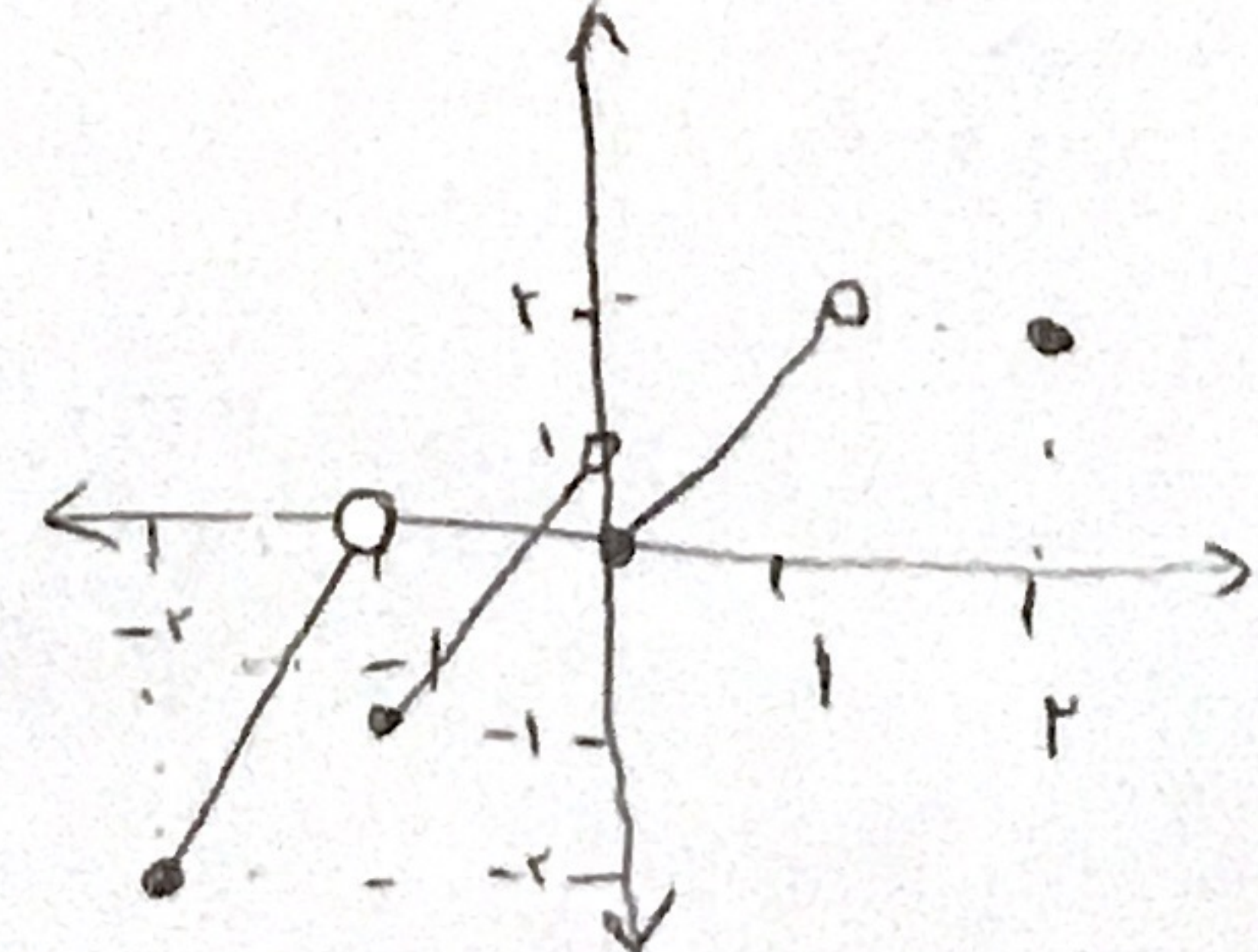
$$||n-8|-1| \neq k$$



$$\rightarrow \boxed{k=1}$$

$$||n-8|-1| \neq k$$

$$g = \begin{cases} 8n+8 & -8 \leq n \leq -1 \\ 8n+1 & -1 \leq n \leq 0 \\ 8n & 0 \leq n \leq 1 \\ 8n-1 & 1 \leq n \leq 8 \\ 8n-8 & n=8 \end{cases}$$



$$\frac{(n-1)(n-2)}{n+1} + b$$

$$I: a = -2 \rightarrow b = 1 \rightarrow a+b = -1$$

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$$II: a = -1 \rightarrow b = 2 \rightarrow a+b = 1$$

$$a+b = \boxed{-1}$$

$$f(n) = \begin{cases} \frac{a+1/(n+2)/(n-1)}{(n-1)(n+1)} & n \neq \pm 1 \\ \frac{an+2}{n+b} & n = \pm 1 \end{cases}$$

$$\rightarrow C = 2, g(n) = n+2$$

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

$$g(1) = 3 = \frac{a+2}{1+b}$$

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

$$b+c = 2-1 = 1$$

8 - رابطه f و g تنها در یک عضو یکی $\{1\}$ اشتراک دارند پس اگر f رابطه هر دو تابع است

$$f: n=1 \rightarrow 4-2a=0$$

$$\rightarrow a = \frac{4}{2} = 2$$

$$g: n=1 \rightarrow b-2=0 \rightarrow b = 2$$

$$(f-g)(n) = 2\sqrt{n-4} + 2k-2 - (\sqrt{n-4} + 2k)$$

$$\rightarrow k = -1$$

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

$$D_f: n \leq m$$

$$D_g: n \geq -1$$

$$D_{f \cap g} = [-1, \sqrt{2}]$$

$$\rightarrow m = \sqrt{2}$$

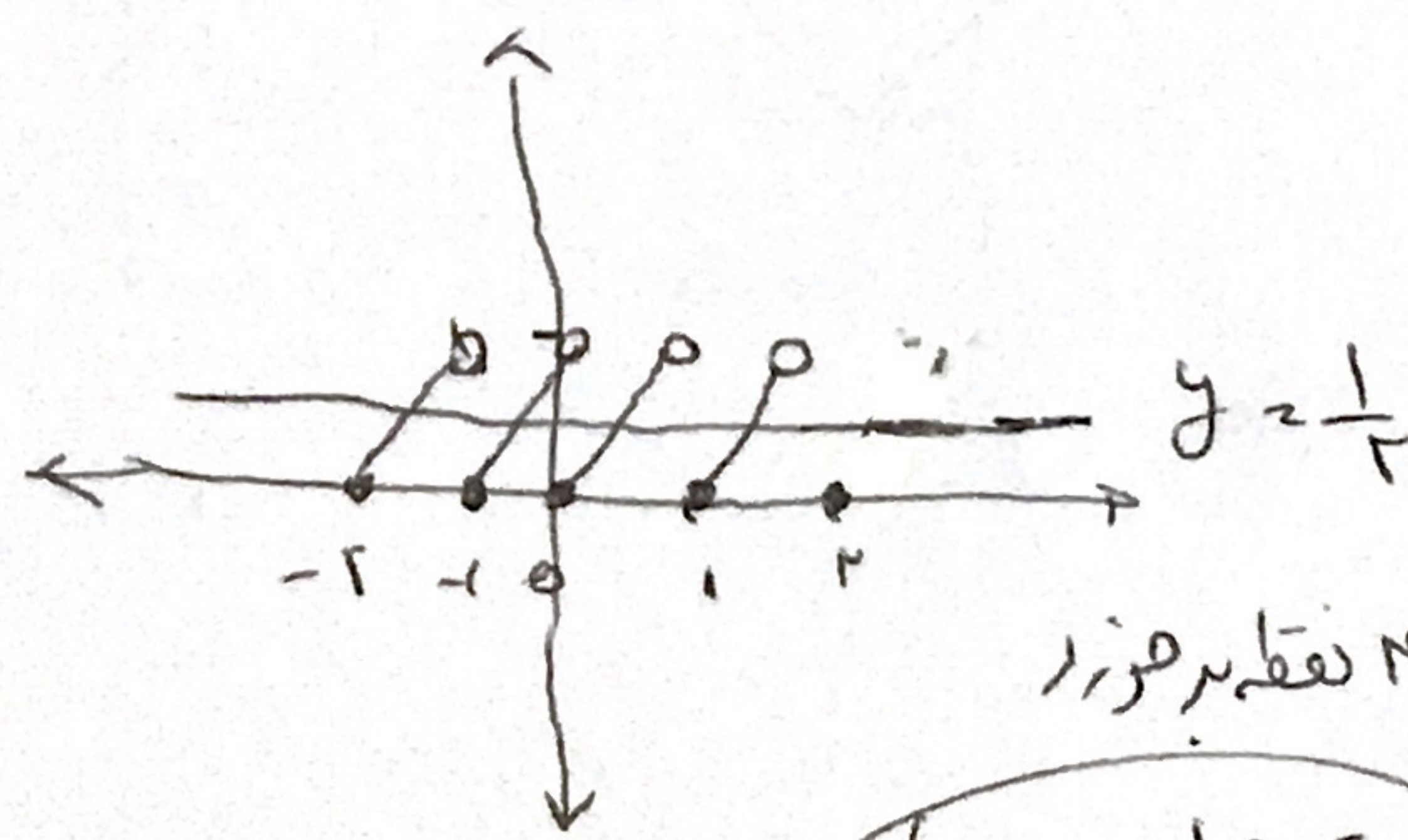
$$2\sqrt{2} = f(m) - g(m)$$

$$\rightarrow 2\sqrt{2} = \sqrt{2} + n$$

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

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

$$\left\{ \begin{array}{l} -2 \leq n < -1 \\ -1 \leq n < 0 \\ 0 \leq n < 1 \\ 1 \leq n < 2 \\ n = 2 \end{array} \right.$$



4 جواب دارد

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