

الف

فصل اول - دو از دست به دست

۲۰ آزمون ۱

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

طال ۱ (۲)

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

$$f(x) = (1+m)x^2 + (-2+n)x + 2 + mn$$

در تابع ثابت ضریب x^2 و x باید صفر باشد

$$1+m=0 \rightarrow m=-1 \quad -2+n=0 \rightarrow n=2$$

$$f(x) = 2 - 1 \cdot x^2 - 2x$$

$$g(x) = \left\{ \left(\frac{-1}{4} \right) \left(\frac{4}{9}p+1 \right) \left(\frac{p}{4} + \frac{1}{2} \right) \left(-9, p+k \right) \right\}$$

$$p+1=-1 \rightarrow p=-2$$

$$p+k=-1$$

$$-2+k=-1 \rightarrow k=1$$

$$k=1$$

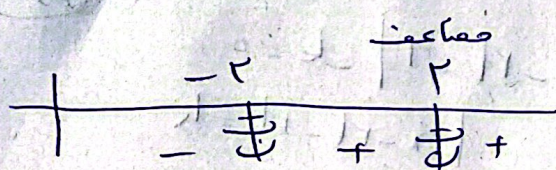
$$m+n+p+k = -1 + 2 - 2 + 1 = 0$$

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

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

طال ۲ (۲)

$$x^2-2x-1=0 \rightarrow x=1 \pm \sqrt{2}$$



$$D = (-2, +\infty) - \{2\}$$

$$b) f(x) = \frac{2x^2+1}{x^2-2x-1}$$

$$f(-x) = 0$$

$$2(-x)^2+1=0 \rightarrow (-x)^2=-\frac{1}{2}$$

$$D_f = \mathbb{R} - (-\sqrt{2}, -1) \cup (-1, \sqrt{2})$$

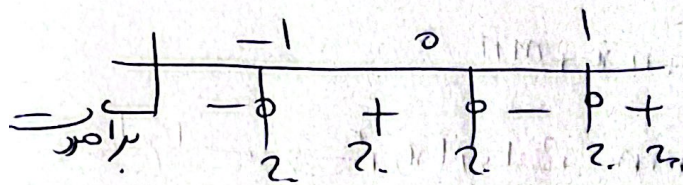
$$-2 < -x < 2 \rightarrow -2 > x > -2$$

الف) $\sqrt{x(x^2-1)} \rightarrow 0 \neq 1$
 $\sqrt{|x|+x}$

$|x|+x \neq 0 \rightarrow (x^+)$ (1)

سوال ۳

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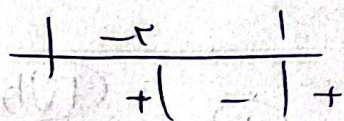
① $\cap (P) \rightarrow [1, +\infty)$ ✓

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

$|x-2|-x^2 \geq 0 \rightarrow x^2 \leq |x-2| \rightarrow x^2 \leq x-2$

$x^2-x+2 \leq 0 \rightarrow \emptyset$

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



(2) $[-2, 1]$

① $\cap (P) \rightarrow [-2, 1] - \{ \pm 1 \}$ ✓ بهتر است $\rightarrow D_f = (-2, 1)$

$y = \frac{1}{||x-2|-1|-k}$ عدد صحیح را بیابیم $||x-2|-1|-k = 0$

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

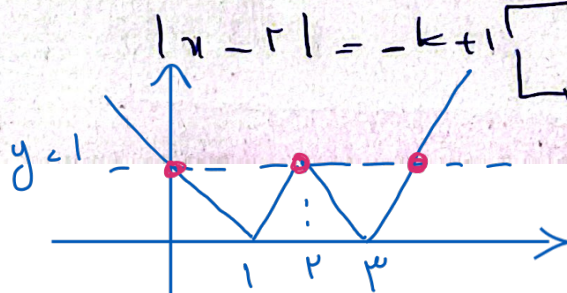
$|x-2|-1 = -k \rightarrow |x-2| = -k+1$

$|x-2| = k+1 \rightarrow x-2 = k+1 \rightarrow x = k+3$

$|x-2| = k+1 \rightarrow x-2 = -(k+1) \rightarrow x = -k+1$

$x-2 = -k+1 \rightarrow x = -k+3$

$x-2 = k-1 \rightarrow x = k+1$



$1 < k$

سوال ۴

۲

$k=2$
 $1 < k$

توجه: عدد در دایره ۰
 یعنی از ۲ ها با هم
 برابرند

با رسم شکل راحت تر به جواب می‌رسد!

$$y = rx - r$$

$$[-r, r]$$

$$(4) \text{ وال } (4)$$

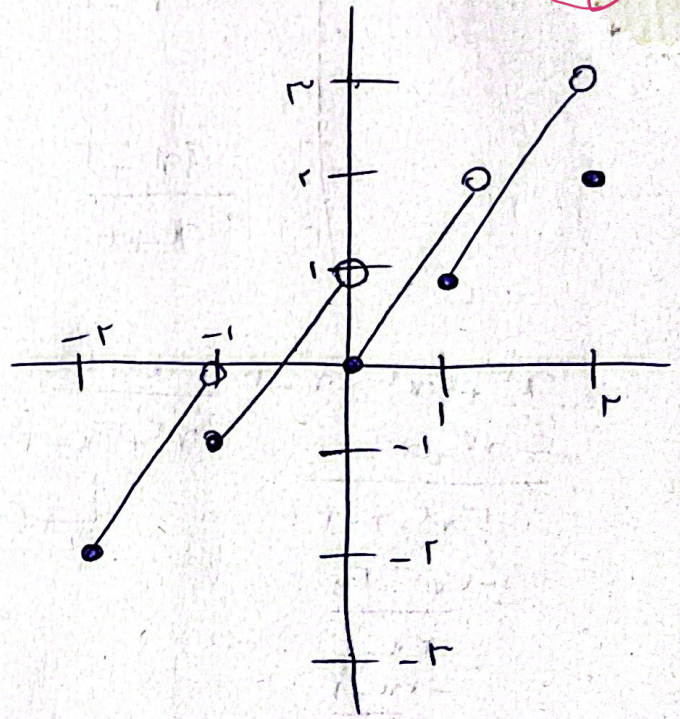
$$-r \leq x < -1 \rightarrow |r| = -r \rightarrow y = rx + r$$

$$-1 \leq x < 0 \rightarrow |r| = -1 \rightarrow y = rx + 1$$

$$0 \leq x < 1 \rightarrow |r| = 0 \rightarrow y = rx$$

$$1 \leq x < r \rightarrow |r| = 1 \rightarrow y = rx - 1$$

$$x = r \rightarrow r$$



$$f(x) = \frac{rx - rx + r}{x + a} + b$$

مطلوب $f(x) = x$

$$(9) \text{ وال } (9)$$

$$\frac{rx - rx + r + bx + ba}{x + a} = x \rightarrow rx + ax = rx + (b - r)x + r + ba$$

$$\left. \begin{array}{l} b - r = a \rightarrow b = a + r \\ ab = -r \end{array} \right\} \begin{array}{l} a(a + r) = -r \\ a^2 + ra = -r \end{array}$$

$$a = -1 \rightarrow b = r$$

$$a = -r \rightarrow b = 1$$

$$\begin{array}{l} a - b = -1 - r = -r \\ a - b = -r - 1 = -r \end{array}$$

$$a - b = -r$$

وال ✓

$$g(n) = x + c$$

$$a = \pm 1 \quad b+c = p$$

$$\begin{array}{r} x^2 + 5x^2 - x - 2 \quad | \quad x - 1 \\ - x^2 + x^2 \\ \hline 5x^2 - x - 2 \\ 5x^2 + 5x + 5 \\ \hline -6x - 7 \\ -6x - 6 \\ \hline -1 \end{array}$$

$$\frac{(x-1)(x+1)(x+1)}{(x+1)(x-1)} = x+1$$

$$x + r = x + c \rightarrow \boxed{c = r}$$

$$\frac{a+r}{1+b} \xrightarrow{x=1} \frac{a+r}{1+b} = r \xrightarrow{1+r} r+rb = r+a \rightarrow \boxed{a = 1+rb}$$

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

$$a - r_b = 1$$

$$\cancel{a} + b = m$$

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

$$\frac{1}{r} + r = \frac{r}{1}$$

$$f(x) = \sqrt{rx - ra} + k - 1$$

$$rf - g = \{1, k\}$$

$$g(x) = \sqrt{b - rx} + rk$$

$$ra - \frac{b}{r} - k = 1$$

$$b - rx \geq 0 \rightarrow \frac{b}{r} \geq x$$

$$rx - ra \geq 0 \rightarrow x \geq \frac{ra}{r}$$

$$\partial f \cap \partial g = \{1\} \rightarrow \frac{r}{r}a = 1 \rightarrow a = \frac{r}{r}$$

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

$$rf - g = r\sqrt{rx - r} + rk - r - \sqrt{rx - r} - rk = 1$$

$$rk - r - rk = 1 \rightarrow rk = -r \rightarrow k = -1$$

$$ra - \frac{b}{r} - k = r\left(\frac{r}{r}\right) - \frac{r}{r} + 1 = 1 - 1 + 1 = 1$$

$$g(x) = \sqrt{rx + r} \rightarrow rx + r \geq 0 \rightarrow rx \geq -r \rightarrow x \geq -1$$

$$f(x) = \sqrt{m - x} + n \rightarrow m - x \geq 0 \rightarrow x \leq m$$

$$-1 \leq x \leq m \rightarrow m = 1$$

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

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

$$m + n \rightarrow 1 + 2\sqrt{r} - r = 2 + 2\sqrt{r}$$

$$y = (-1)^r (x - \lceil r \rceil) = \lfloor x \rfloor$$

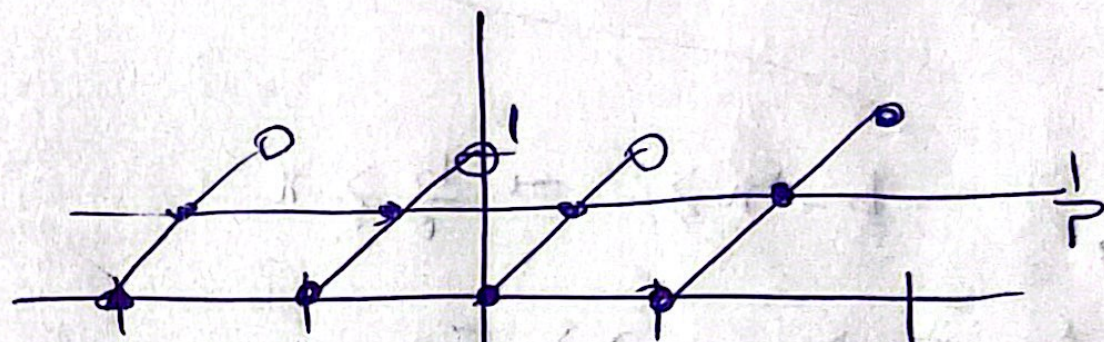
$$-2 \leq x < -1 \xrightarrow{\lceil r \rceil = -2} y = x + 2$$

$$-1 \leq x < 0 \xrightarrow{\lceil r \rceil = -1} y = x + 1$$

$$0 \leq x < 1 \xrightarrow{\lceil r \rceil = 0} y = x$$

$$1 \leq x < 2 \xrightarrow{\lceil r \rceil = 1} y = x - 1$$

$$x = 2 \rightarrow y = 2$$



فرضه تا مع کوره

سپه معادله ف جواب دار

سوال ۱۰

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