

نام و نام خانوادگی ..... آیینیه برکت ..... پاسخنامه تشریحی تکلیف شماره ... کلاس ... زمان ده دقیقه ...

$$f(x) = (x+1)^2 + (3x-1)^2 + mx^2 + nx + mn \rightarrow f(x) = (1+m)x^2 + (n-4)x + mn+2 \rightarrow f(x) = -3x$$

$m = -1$  ✓  $n = 4$  ✓

$$g(x) = \{(t, m) \overset{-10}{(t, m)} \overset{t}{(t, m)} (p+1) (p+2, -1) (-9, p+k)\} \rightarrow g(x) = \{(2, -10) (2, -10) (-9, -1) (-9, k-11)\}$$

$p+1 = -1$  ✓  $p = -11$  ✓  $k-11 = -1$  ✓  $k = 10$  ✓

$$\Rightarrow m+n+p+k = -1 + 4 + (-11) + 10 = -7$$

الف)  $y = \sqrt{\frac{x-2}{x^2-2x^2-1}} \Rightarrow \frac{x-2}{x^2-2x^2-1} \geq 0 \rightarrow \frac{x-2}{(x-2)(x+2)(x^2+2)} \geq 0 \rightarrow \frac{-2}{\frac{1}{0} + \frac{1}{0} + \frac{1}{0}} \rightarrow D = (-2, +\infty) - \{2\}$

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

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

ب)  $f(x) = \frac{\sqrt{|x-2|-x^2}}{|x|-1} \rightarrow |x|+x > 0 \rightarrow x > 0$  ②  $\xrightarrow{I, II} D_f = [1, +\infty)$  ✓

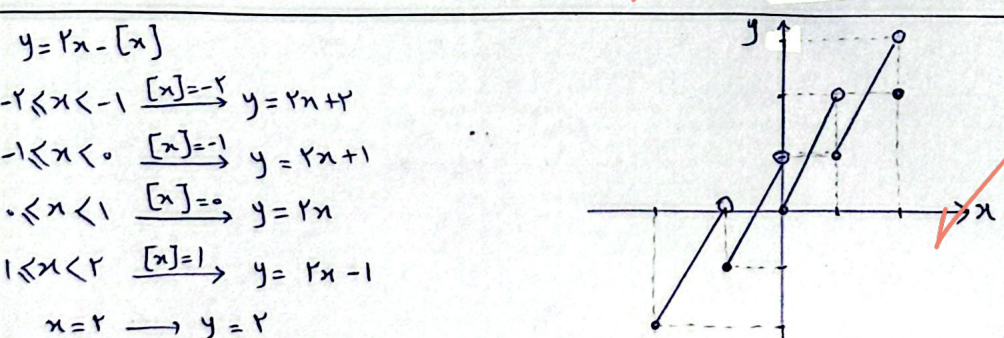
$|x-2|-x^2 \geq 0 \xrightarrow{x>2} x-2-x^2 \geq 0$   $\xrightarrow{x \leq 2} -x^2 \geq 0 \rightarrow x=0$   $\xrightarrow{x < 2} -x+2-x^2 \geq 0 \rightarrow x^2+x-2 \leq 0 \rightarrow \frac{-2}{\frac{1}{0} + \frac{1}{0} + \frac{1}{0}} \rightarrow [-2, 1]$  ③  $\xrightarrow{I, II} D_f = [-2, 1]$  ✓

$y = \frac{1}{||x-2|-1|-k} \rightarrow ||x-2|-1| \neq k \rightarrow |x-2|-1 \neq \pm k \rightarrow |x-2| \neq k+1$   
 $\rightarrow |x-2| \neq 1-k$

$\left. \begin{aligned} x-2 \neq k+1 &\Rightarrow x \neq k+3 \\ x-2 \neq -k-1 &\Rightarrow x \neq 1-k \\ x-2 \neq 1-k &\Rightarrow x \neq 3-k \\ x-2 \neq k-1 &\Rightarrow x \neq 1+k \end{aligned} \right\} \begin{aligned} &\text{در دامنه باشد} \\ &\text{در دامنه نباشد} \end{aligned}$

$k=1$  ✓  
 $3-k=k+1 \rightarrow 2k=4 \rightarrow k=2$  ✓  
 $k=1$  ✓

⊛  $k$  نمی تواند ۱ باشد زیرا جواب قدر مطلق همیشه مثبت است  
 ⊛  $k$  نمی تواند صفر باشد زیرا در این صورت ۱ به جای ۰ می رسد، ۰ رسیده دارد.



$$f(x) = \frac{x^r - \varepsilon x + r}{x+a} + b = x \quad \frac{(x-r)(x-1)}{x+a} = x-b \rightarrow (x-r)(x-1) = (x-b)(x+a)$$

$$x^r - \varepsilon x + r = x^r + (a-b)x - ab$$

$$ab = -r$$

$$\boxed{a-b = -r} \quad \checkmark$$

$$f(x) = \begin{cases} \frac{x^r + rx^r - x - r}{x^r - 1} & : x \neq \pm 1 \\ \frac{ax+r}{x+b} & : x = \pm 1 \end{cases} \quad \begin{matrix} g(x) = x+c \\ g(x) = x+r \end{matrix}$$

$$f(0) = g(0) \quad \frac{-r}{-1} = 0 + c \rightarrow \boxed{c = r} \quad \checkmark$$

$$f(1) = g(1) \quad f(-1) = g(-1) \quad \begin{cases} rb - a = -1 \\ b + a = r \end{cases}$$

$$\frac{a+r}{1+b} = r \quad \frac{-a+r}{-1+b} = 1$$

$$rb - a = -1 \quad a + b = r$$

$$b = -\frac{1}{r} \quad b + c = -\frac{1}{r} + r = \left(\frac{r}{r}\right)$$

$$r + \frac{1}{r} = r, 0$$

$$f(x) = \sqrt{\varepsilon x - r} + k - 1 \quad g(x) = \sqrt{b - \varepsilon x} + rk \quad D_{f \neq g} = \{1\} \rightarrow \frac{b}{\varepsilon} = \frac{ra}{\varepsilon} = 1$$

$$Df \Rightarrow \varepsilon x - r \geq 0 \quad x \geq \frac{ra}{\varepsilon}$$

$$Dg \Rightarrow b - \varepsilon x \geq 0 \quad x \leq \frac{b}{\varepsilon}$$

$$\begin{cases} f(x) = \sqrt{\varepsilon x - \varepsilon} + k - 1 \\ g(x) = \sqrt{\varepsilon - \varepsilon x} + rk \end{cases}$$

$$rf - g(1) = k \rightarrow rf(1) - g(1) = k$$

$$r(0 + k - 1) - (0 + rk) = k$$

$$rk - r - rk = k \quad rk = -r \quad \boxed{k = -1} \quad \checkmark$$

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

$$= \varepsilon - r + 1 = \boxed{r} \quad \checkmark$$

$$f(x) = \sqrt{m-x} + n \quad g(x) = \sqrt{rx+r} \quad D_{f,g} = [-1, V]$$

$$m-x \geq 0 \quad x \leq m$$

$$rx+r \geq 0 \quad x \geq -1 \rightarrow [-1, V] = [-1, m] \rightarrow \boxed{m = V} \quad \checkmark$$

$$f(r) - g(r) = 4\sqrt{r}$$

$$\sqrt{r} + n - r\sqrt{r} = 4\sqrt{r} \quad \boxed{n = 3\sqrt{r} - r} \quad \checkmark$$

$$m+n = V + 3\sqrt{r} - r = \boxed{a + 3\sqrt{r}} \quad \checkmark$$

$$y = (-1)^r (x - [x]) = \frac{1}{r} \quad y = (x - [x])$$

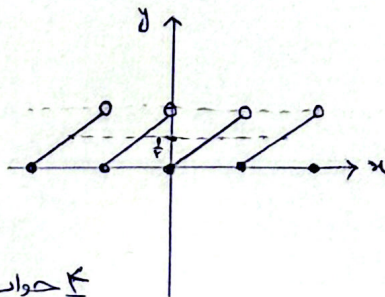
$$-r \leq x < -1 \quad [x] = -r \rightarrow y = x + r$$

$$-1 \leq x < 0 \quad [x] = -1 \rightarrow y = x + 1$$

$$0 \leq x < 1 \quad [x] = 0 \rightarrow y = x$$

$$1 \leq x < r \quad [x] = 1 \rightarrow y = x - 1$$

$$x = r \rightarrow y = 0$$



حجاب دار