حسن رمضانی · پایه دهم دفتر ۲ · شماره ۸

(۹)

$f(x) = \sqrt{1-x^2} \rightarrow 1-x^2 \geq 0 \rightarrow 1 \geq x^2 \rightarrow 1 \geq x \geq -1$

$f = \{(-1,0)(0,1)(1,0)\}$

$g = \{(-1,1)(0,4)(1,2)\}$

$2(1)-3(0) = 2$
$2(4)-3(1) = 5$ $\xrightarrow{+}$ $2+5+4 = 11$
$2(2)-3(0) = 4$

(۲)

$f(3) = 2(3)-1 = 5 \rightarrow [5,+\infty)$

$g(3) = \frac{1}{4}\times 3^2+3 = 4 \rightarrow (-\infty, 4]$ $\xrightarrow{\cup}$ $(-\infty,4]\cup[5,+\infty)$

(۳)

$-\frac{x^2}{4}+x+3 > \frac{3}{2} \rightarrow -\frac{x^2}{4}+x+\frac{3}{4} > 0$

$-x^2+2x+3 > 0$

$x = -1$, $x = 3$

$\sqrt{3-(-1)} = 2$

$a = -1$
$b = 3$

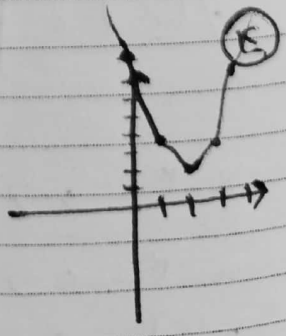
$y = |x-1| + |x-3| + |2x-4|$

$x = 1$, $x = 3$, $x = 2$

$\begin{bmatrix}0\\8\end{bmatrix}$ $\begin{bmatrix}1\\4\end{bmatrix}$ $\begin{bmatrix}2\\2\end{bmatrix}$ $\begin{bmatrix}3\\4\end{bmatrix}$ $\begin{bmatrix}4\\8\end{bmatrix}$

$y_{min} = 2$

(۴)



$y = |x| - 2|x+1|$

$x = 0$ $\quad x = -1$

$-1 \quad 0$

	$-x - 2x - 2$	$x - 2x - 2$
$-x + 2x + 2$	$-2x - 2$	$-x - 2$
$x + 2$	1	-2

$\begin{bmatrix} -2 \\ 0 \end{bmatrix}$ $\quad \begin{bmatrix} 1 \\ -2 \end{bmatrix}$

$R = (-\infty, 1]$

(۹)

$yx + y = x^2 + 5x + m$

$x^2 + 5x + m - yx - y = 0 \rightarrow x^2 + 5x - yx + m - y = 0$

$(5-y)^2 - 4(m-y) \geq 0$

$y^2 - 6y + 25 - 4m \geq 0$

$36 - 4(25 - 4m) \leq 0 \rightarrow 36 - 100 + 16m \leq 0$

$16m \leq 64 \rightarrow m \leq 4$

$m = 4 \Rightarrow R$ دارای $x = -1$ می‌شود

$m = \{1, 2, 3\}$ ۳ عدد طبیعی

(۷)

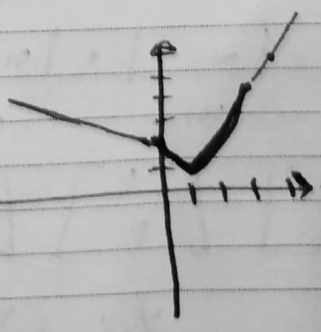
$$f(x) = \begin{cases} x + 2 & x \geq 3 \\ x^2 - 2x + 2 & 0 \leq x < 3 \\ \ln|x+2| & x < 0 \end{cases}$$

$x = 3 \rightarrow y = 5$ $\quad x = -1 \rightarrow y = 3$

$x = 2 \rightarrow y = 2$

$x = 1 \rightarrow y = 1$

$x = 0 \rightarrow y = 2$



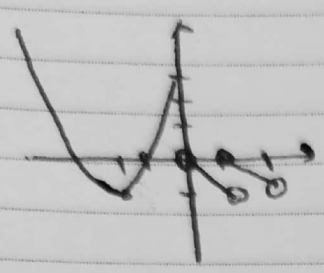
$R = [1, +\infty)$

$$f(x)=\begin{cases} x^2+4x+2 & x\le 0 \\ [4x]-2x & x>0 \end{cases}$$

$x\le 0 \rightarrow \min \left|\begin{matrix}-2\\-1\end{matrix}\right.$ (۸)

$x>0 \rightarrow (1,0]$

$R=[-1,+\infty)$



(۹)

$y=a+1-\sqrt{4x+4} \rightarrow D_y: 4x+4\ge 0$

$4x\ge -4 \rightarrow x\ge -\frac{4}{4}$

$y=a+1=5 \rightarrow a=4$

$b=-\frac{4}{4}$

$4\times\left(-\frac{4}{4}\right)=-4$

(۱۰)

$f(x)=2\sqrt{x+1}+4\sqrt{1-x}$

$f(x)\cdot g(x)=2\sqrt{2+2\sqrt{1-x^2}}$

$D_f: -1\le x\le 1$

$f(-1)=4\sqrt{2} \quad f(0)=6 \quad f(1)=4\sqrt{2}$

$f(1)\cdot g(-1)=2\sqrt{2} \quad f(0)\cdot g(0)=6$

$4\sqrt{2} \quad 6 \quad 4$

$g(-1)=-\sqrt{2} \quad g(0)=0$

$g(1)\cdot f(1)=2\sqrt{2} \rightarrow g(1)=\sqrt{2}$

$4\sqrt{2}$

$\frac{f(x)-2g(x)}{4} \Rightarrow x=1 \rightarrow 0$

$x=0 \rightarrow 1 \rightarrow [0,\sqrt{2}]$

$x=-1 \rightarrow \sqrt{2}$