آیناز کریم زاده - یازدهم ریاضی ... - تکلیف

سوال ۱)

$f(x) = \sqrt{1-x^2} \rightarrow D_f = [-1,1]$

$D_g = \{-1,0,1,2\} \quad \cap \rightarrow \{-1,0,1\}$

$\rightarrow 2g-3f = \{(-1, 2(1)-3(0))(0, 2(4)-3(1))(1, 2(2)-3(0))\} \rightarrow \{(-1,2)(0,5)(1,4)\}$

سوال ۲)

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

$g(x) = \frac{1}{3}x+3 \quad D_g = (-\infty,3] \rightarrow g(3) = 4 \rightarrow R_g = (-\infty,4]$

$\cup \rightarrow R = (-\infty,4] \cup [5,+\infty)$

سوال ۳)

$\frac{-x^2}{2}+x+3 > \frac{3}{2} \rightarrow -x^2+2x+6 > 3 \rightarrow x^2-2x-3 < 0 \rightarrow (x-3)(x+1) < 0$

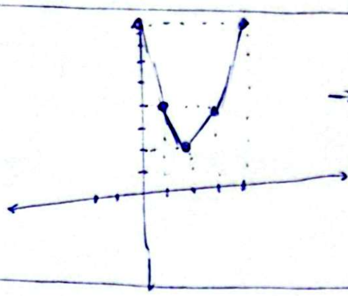
-1		3	
+	-	+	

$\sqrt{3-(-1)} = \sqrt{4} = 2$ — $a=-1$, $b=3$

سوال ۴)

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

	1	2	3	
$-4x+8$	$-2x+6$	$2x-2$	$4x-8$	

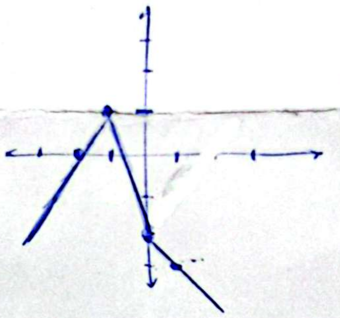


$\rightarrow$ کمترین مقدار $= 2$

سوال ۵)

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

	-1	0	
$x+2$	$-3x-2$	$-x-2$	



$\rightarrow R_y = (-\infty,1]$

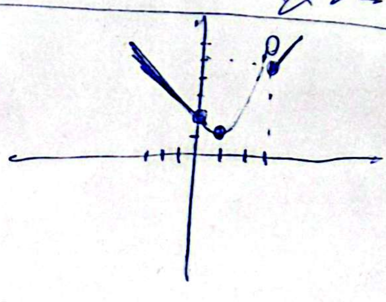
سوال ۶)

$y = \frac{x^2+5x+m}{x+1}$

$\rightarrow 1+m = 5 \rightarrow m = 4$

سوال ۷)

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



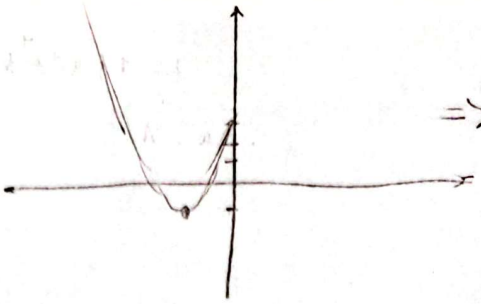
$\rightarrow R_f = [1,+\infty)$

آنالیز تمرین اول

سوال ۱

$$f(x)\begin{cases} x^2+4x+3 & x\le 0 \\ [2x]-2x & x>0 \end{cases}$$

$$0 \le 2x-[2x]<1 \Rightarrow -1<[2x]-2x\le 0$$



$$\Rightarrow R_f=[-1,+\infty)$$

سوال ۲

$$y=a+1-\sqrt{2x+3} \rightarrow D_y=[b,+\infty)$$

$$\rightarrow 2x+3\ge 0 \rightarrow x\ge \frac{-3}{2} \rightsquigarrow \boxed{b=\frac{-3}{2}}$$

$$R_y=(-\infty,0] \quad x=\frac{-3}{4} \quad a+1-0=0$$

$$\rightarrow a=-1$$

$$\rightarrow \frac{-3}{4}\times 4=\boxed{-3}$$

سوال ۳

$$f(x)=2\sqrt{x+1}+2\sqrt{1-x} \rightsquigarrow D_f=-1\le x\le 1$$

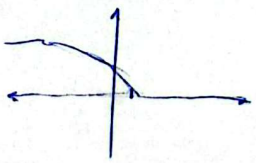
$$f(x)+g(x)=3\sqrt{2+2\sqrt{1-x^2}}=3\sqrt{\left(\sqrt{1-x}+\sqrt{1+x}\right)^2}=3\sqrt{1-x}+3\sqrt{1+x}$$

$$g(x)=3\sqrt{1-x}+3\sqrt{1+x}-2\sqrt{x+1}-2\sqrt{1-x}=\underbrace{\sqrt{1+x}-\sqrt{1-x}}_{g(x)}$$

$$y=\frac{f(x)}{3}-\frac{g(x)}{3}=\frac{f(x)-2g(x)}{3}$$

$$\rightarrow \frac{2\sqrt{x+1}+2\sqrt{1-x}-2\sqrt{1+x}+2\sqrt{1-x}}{3}$$

$$\rightarrow \frac{3\sqrt{1-x}}{3} \rightarrow y=\sqrt{1-x}$$



$$R_y=[0,+\infty)$$