$f = \{(-1,0)(0,1)\}$ ۱۴

درسا صادقی زاده

سوال ۱) $f(x) = \sqrt{1-x^2}$ $\quad g = \{(-1,1)(0,2)(2,0)(1,1)\}$ ۱۵

$D_f : 1-x^2 \geq 0 \rightarrow x^2 \leq 1 \rightarrow -1 \leq x \leq 1$

$3g - 2f = \{(-1,1)(0,5)\} \rightarrow R = \{2,5\}$ $\quad (1,4)$ $\quad 4+2+5=11$

سوال ۲) $f(x) = 2x-1 \xrightarrow{x=3} 5$ $\quad D_f = [3,+\infty)$

$\Rightarrow R_f : [5,+\infty)$

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

۵ $R_f \cup R_g = (-\infty,4] \cup [5,+\infty) = R - (4,5)$

سوال ۳) $y = \frac{-x^2}{2}+x+c \rightarrow -\frac{x^2}{2}+x+3 > \frac{3}{2} \xrightarrow{\times 2}$

$-x^2+2x+6 > 3 \rightarrow -x^2+2x+3 > 0 \rightarrow x^2-2x-3 < 0$ ۵

$(x-3)(x+1)$

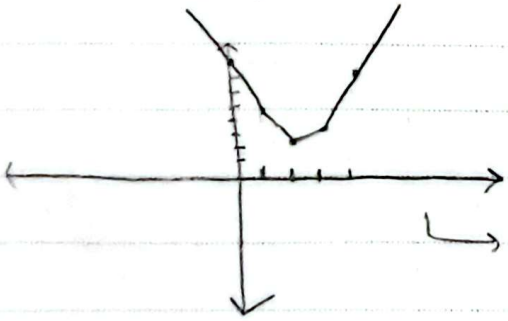
$+ \phi - \phi +$ $\quad -1 \quad 3$

$\Rightarrow (-1,3) \ni 1.8$ $\quad \sqrt{1-(-c)^2} : 2$

سوال ۴) $y = |x-1| + |x-c| + |4-2x|$

$x = 1, 3, 2 \hookrightarrow$

$x<1$	$1 \leq x < 2$	$2 \leq x < 3$	$x \geq 3$
$-c+1-x$	$3+x-1-x$	$x-1-x$	$-3+x+1-x$
$3+2x$	$3+2x$	$+2x+3$	$-2x+4$
$=-7+2x$	$=-4+2x$	-2	$=7-2x$
		$=2x-2$	



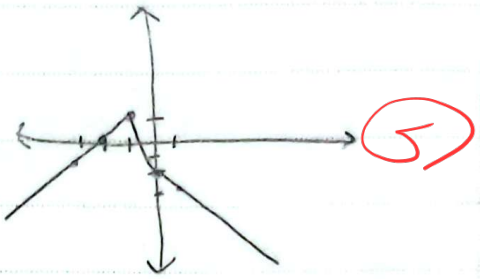
$\hookrightarrow$ کمترین مقدار $= 2$ ۵

Arman

سوال ۵) برد تابع $y = |x| - 2|x+1|$

$x = 0$ ، $x = -1$

	$x < -1$	$-1 \le x < 0$	$x \ge 0$
$-x + 2x + 2$	$-x - 2x$	$x - 2x - 2$
$= x + 2$	-2	$= -x - 2$
	$= -3x$	
	-2	



$R_f : (-\infty, 1]$

سوال ۶) طبق ضریب $x \in$

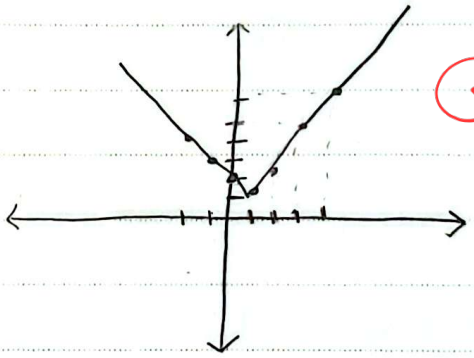
$1 + x_2 = 5 \rightarrow x_2 = 4$

$y = \dfrac{x^2 + 5x + m}{x+1}$ ← یکه از ریشه‌ها نباید شود

$\Rightarrow \dfrac{(x+1)(x+4)}{(x+1)} \Rightarrow m = 4$

سوال ۷) برد

$$\begin{cases} x + 2 & ; \quad x \ge 3 \\ x^2 - 2x + 2 & ; \quad 0 < x < 3 \\ |x| + 2 & ; \quad x < 0 \end{cases}$$

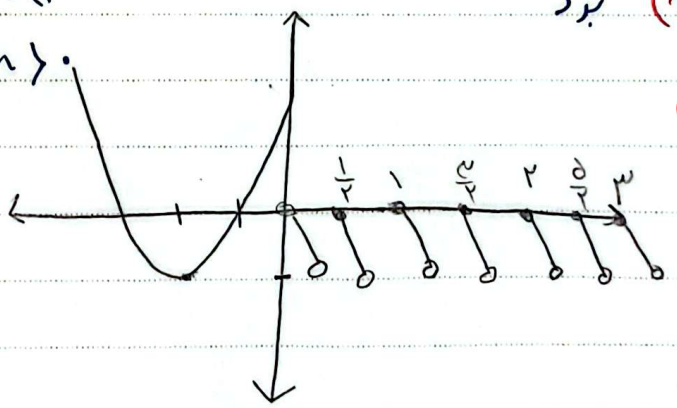


$R_f = [1, +\infty)$

سوال ۸) برد

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

$\min \begin{vmatrix} -2 \\ -1 \end{vmatrix}$



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

Arman

سوال ۹) راستا دهید $y = a+1 - \sqrt{2x+3}$ به ترتیب بازه‌های $(-\infty, a]$ و $[b, +\infty)$

abs?

$D_f \rightarrow 2x+3 \geq 0 \quad x \geq -\frac{3}{2} \Rightarrow D_f : [-\frac{3}{2}, +\infty)$ (۵)

$x = -\frac{3}{2}, \; y = a+1 - a \Rightarrow a+1 = a \Rightarrow a \in \mathbb{R} \Rightarrow$

$4x - \frac{3}{2} = -4$

سوال ۱۰) $f(x) = 2\sqrt{x+1} + 4\sqrt{1-x}$, $f(x) + g(x) = 3\sqrt{2 + 4\sqrt{1-x^2}}$

$y = \frac{f(x)}{4} - \frac{g(x)}{6}$ برد $\leftarrow D_f, D_g$ ،

$g(x)$

سوال ۱۰

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

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

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

$$\sqrt[3]{\left(\sqrt{1-x}+\sqrt{1+x}\right)^2} = \left(\sqrt{1-x}+\sqrt{1+x}\right)^{\frac{2}{3}}$$

۰/۵

$$f(x)+g(x)-f(x) = \sqrt[3]{1-x}+\sqrt[3]{1+x}-\sqrt{x+1} = \sqrt[4]{1-x}$$

$$= -\sqrt{1-x}+\sqrt{1+x} = g(x) \qquad y = \frac{f(x)}{4}-\frac{g(x)}{3} = \frac{3f(x)-4g(x)}{12}$$

$$\frac{\sqrt{x+1}+\sqrt[4]{1-x}+\sqrt{1-x}+\sqrt[3]{1+x}}{4} = \frac{\sqrt[4]{1+x}+\sqrt[4]{1-x}}{4} = \frac{\sqrt{1+x}+\sqrt{1-x}}{3}$$

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

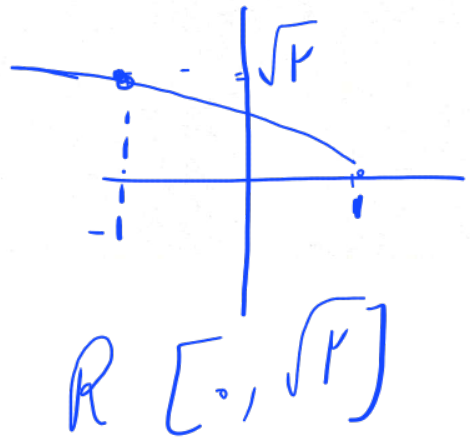
D_f: $x+1 \geq 0 \Rightarrow x \geq -1$, $1-x \geq 0 \Rightarrow x \leq 1 \Rightarrow D = [-1, 1]$

$x=-1 \longrightarrow 0 + \frac{\sqrt{2}}{3}$, $x=1 \longrightarrow \frac{2\sqrt{2}}{3} + 0 \Rightarrow R_f = \left[\frac{\sqrt{2}}{3}, \frac{2\sqrt{2}}{3}\right]$

$f(x)+g(x) = 3\sqrt{2+2\sqrt{1-x^2}}$ توان ۲ $\longrightarrow$ $9\left(\sqrt{1-x}+\sqrt{1+x}\right)^2$ جذر $\longrightarrow 3\left(\sqrt{1-x}+\sqrt{1+x}\right)$

$\rightarrow g(x) = \sqrt{1+x} - \sqrt{1-x}$

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



$R\ [0, \sqrt{2}]$

$x^2 + (5-y)x + m - y = 0 \longrightarrow x = \dfrac{y-5 \pm \sqrt{(5-y)^2 - 4(m-y)}}{2} \longrightarrow \geq 0$ (4

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

$\begin{cases} a > 0 \longrightarrow 1 > 0 \\ \Delta \leq 0 \longrightarrow m < 4 \longrightarrow \end{cases}$ m نمی‌تواند برابر ۴ باشد

$m = 1, 2, 3$