۱۹,۷۵

نام و نام خانوادگی امیرحسین ... پاسخنامه تشریحی تکلیف شماره ۸ کلاس یازدهم

۱ (۱,۷۵)

$2g = \{(-1,2), (0,8), (2,0), (4,1)\}$

$3f(x) = \{(-1,0), (0,3), (1,0)\}$

$2g - 3f = \{(-1,2), (0,5), (1,4)\}$ جمع ۱۱ دقت!

۲ (۲)

$f(x) = 2x-1 \longrightarrow D_f = [3,+\infty) \longrightarrow R_{f_1} = [5,+\infty)$

$g(x) = \frac{1}{3}x+3 \longrightarrow D_f = (-\infty,3] \longrightarrow R_{f_2} = (-\infty,4]$

① و ② $\longrightarrow R_{f_T} = (-\infty,4] \cup [5,+\infty)$ ✓

۳ (۲)

$y = -\frac{x^2}{2} + x + 3 \quad \underline{D_f = (a,b)} \quad -\frac{x^2}{2} + x + 3 > \frac{3}{2} \rightarrow -x^2+2x+4 > 3$

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

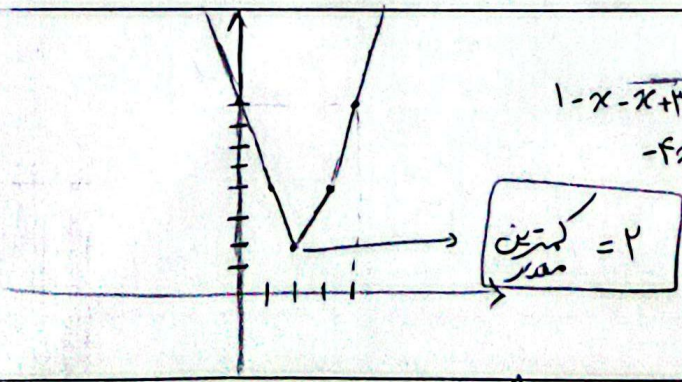
روسی $\rightarrow x^2+2x-3 > 0 \rightarrow (x+3)(x-1) > 0$

$\hookrightarrow x = +3, -1$

$\hookrightarrow (-1,3)$

$\sqrt{b-a} = \sqrt{4} = 2$ ✓ $\leftarrow \begin{matrix} a=-1 \\ b=3 \end{matrix}$

۴ (۲)



	۱	۲	۳
	$1-x-x+3-2x+4$	$x-1-x+3-2x+4$	$x-1+3-x+2x-4$
	$-4x+8$ ④	$-2x+6$ ③	$2x-2$ ④

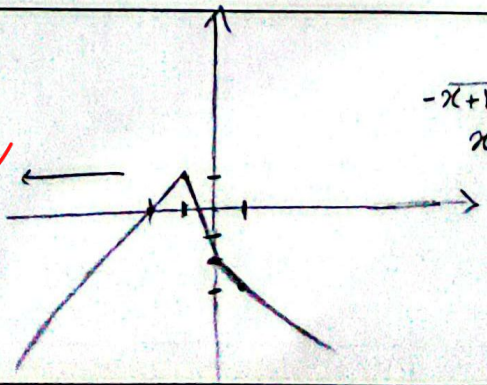
کمترین مقدار $= 2$ ✓

۵ (۲)

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

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

$R_f = (-\infty, 1]$ ✓ $\leftarrow$



$y = \frac{x^2+5x+m}{x+1} \rightarrow y(x+1) = x^2+5x+m \rightarrow yx+y = x^2+5x+m$ (۲)

$\rightarrow x^2 + (5-y)x + (m-y) = 0 \rightarrow \Delta = (5-y)^2 - 4(m-y) = 25 - 10y + y^2 - 4m + 4y$

$\rightarrow \Delta = y^2 - 6y + (25-4m) \geq 0 \rightarrow 36 - 4(25-4m) = 16m - 64 \Rightarrow y = \frac{6 \pm \sqrt{16m-64}}{2}$

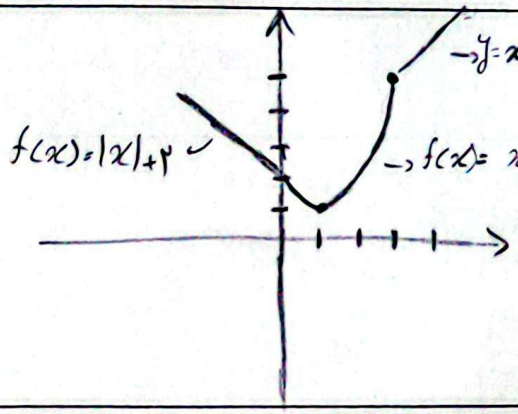
$y = 3 \pm \sqrt{m-4}$

$m>4 \rightarrow R = (-\infty, 3-2\sqrt{9-4}) \cup (3+2\sqrt{m-4}, +\infty) \neq R$

$m=4 \rightarrow y = x+4 \rightarrow R_f = R - \{4\}$; $m<4 \Rightarrow \Delta_2 < 0 \rightarrow \Delta > 0$ ✓

$m = 1$ یا 2 یا 3 ✓

پس ۳ جواب دارد.



$\rightarrow R_f = [1, +\infty)$ ✓ (۲)

$f(x) = \begin{cases} x^2+4x+3 & ; x<0 \\ [2x]-2x & ; x>0 \end{cases}$ $\quad (x+1)(x+3)$ ↳ -1 ↳ -3

$\hookrightarrow R_f = (-1, 0]$

$R_f = [-1, +\infty)$ ✓ (۴)

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

$R_f = (-\infty, 5]$

↳ $2x+3 \geq 0 \rightarrow x \geq -\frac{3}{2} \rightarrow \boxed{b = -\frac{3}{2}}$ ✓

$x = -\frac{3}{2} \rightarrow a+1 = 5 \rightarrow a = 4$ ✓

$\rightarrow ab = 4(-\frac{3}{2}) = \boxed{-6}$ ✓ (۲)

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

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

$f(x) = 2\sqrt{x+1} + 4\sqrt{1-x} \Rightarrow g(x) = \sqrt{x+1} - \sqrt{1-x}$ $\quad D_f = D_g = [-1, 1]$

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

$y = \frac{4\sqrt{1-x}}{4} = \sqrt{1-x} \Rightarrow R_f = [0, \sqrt{2}]$ ✓

↳ $D = [-1, 1]$ (۲)