

19, V.A

نام و نام خانوادگی: علی پورانی پاسخنامه تشریحی تکلیف شماره ۸۰۰ کلاس: پایه دهم سر ۸۰۰

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

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دقت!

$$f - g = \{(-1, 2), (0, 6), (1, 4)\} \quad R_{f-g} = \{2, 6, 4\}$$

$$2) 2 + 6 + 4 = 12 //$$

$$f(x) = 2x - 1 \xrightarrow{D_f = [2, +\infty)} R_f = [4, +\infty)$$

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

$$R_f \cup R_g = (-\infty, 4] \cup [4, +\infty) \checkmark$$

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

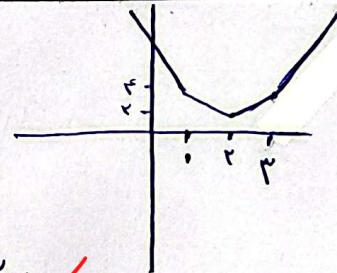
$$\rightarrow -(x^2 - 2x - 3) > 0 \rightarrow -(x - 3)(x + 1) > 0$$

$$\Rightarrow (a, b) = (-1, 3) \Rightarrow \sqrt{b - a} = 2 \checkmark$$

$$g = |x - 1| + |x - 2| + |2x - 4|$$

$1 - x + 2 - x + 4 - 2x$	$x - 1 - x + 2 - 2x + 4$	$x - 1 - x + 2 + x + 4$	$x - 1 + x - 2 + 2x - 4$
$-5x + 7$	$-2x + 5$	$2x - 2$	$4x - 7$

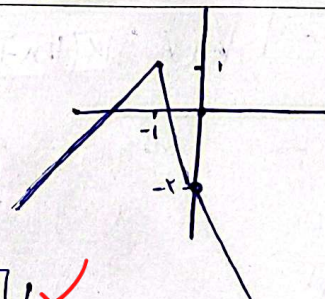
$$\Rightarrow g_{\min} = 2 \checkmark$$

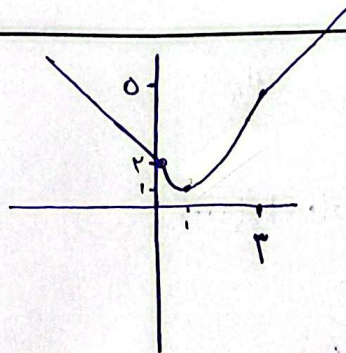


$$g = |x| - 2|x + 1|$$

$-x + 2x + 2$	$-x - 2x - 2$	$x - 2x - 2$
$x + 2$	$-3x - 2$	$-x - 2$

$$\Rightarrow R_f = (-\infty, 1] \checkmark$$





$$x+2; x \geq 1$$

$$x^2-2x+1; 0 \leq x < 1 \xrightarrow{x \rightarrow 0} y = 1 \quad \frac{-b}{2a} = 1 \xrightarrow{y}$$

$$|x|+2; x \leq 0$$

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

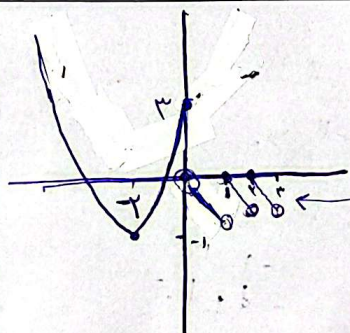
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V

$$\frac{x^2+0x+m}{x+1} \geq y \Rightarrow y \geq x+1 \Rightarrow x^2+0x+m \geq x^2+(0-y)x+(m-y)$$

$$\Delta \geq 0 \Rightarrow (0-y)^2 - 4(1)(m-y) \geq 0 \Rightarrow y^2 - 4y + 4m \geq 0$$

$$\frac{-b}{2a} = 2 \Rightarrow 2^2 - 4 + 4m = 0 \Rightarrow 4m = 0 \Rightarrow m = 0 \Rightarrow m \in \{0\} \checkmark$$

(2)
y



$$x^2+2x+1; x \leq 0 \xrightarrow{x \rightarrow 0} y = 1 \quad \frac{-b}{2a} = -1 \quad y = -1$$

$$[x^2] - 2x; x > 0$$

$$[x^2] - 1$$

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

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$$x+2 \geq 0 \rightarrow x \geq -2 \Rightarrow D_f = [-2, +\infty) \Rightarrow b = -2 \checkmark$$

$$\Rightarrow y = 0 \Rightarrow a+1 = 0 \Rightarrow a = -1 \checkmark$$

$$\Rightarrow ab = -2 \times (-1) = 2 \checkmark$$

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q

$$f(n)+g(n) = \sqrt{(\sqrt{n+1})+(\sqrt{1-n})} \Rightarrow f(n)+g(n) = \sqrt{\sqrt{n+1}+\sqrt{1-n}}$$

$$(f(n)+g(n))-f(n) = \sqrt{\sqrt{n+1}+\sqrt{1-n}} - \sqrt{n+1} = \sqrt{1-n} - \sqrt{n+1} = g(n)$$

$$g = \frac{f(n)}{n} - \frac{g(n)}{n} = \frac{f}{n} - \frac{1}{n} \frac{f+g}{n} = \frac{1}{n} f - \frac{1}{n^2} (f+g) = \frac{1}{n} (\sqrt{n+1}+\sqrt{1-n}) - \frac{1}{n^2} (\sqrt{n+1}+\sqrt{1-n})$$

$$= \sqrt{1-n} \xrightarrow{[-1,1]} R_f = [0, \sqrt{2}] \checkmark$$

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