۱۹,۵

رضا قاسمی

۱- ②

$-1, \{x, 2, 1.$

$-1, 0, 2, 1 \} \xrightarrow{D} \{-1, 0, 1\}$

$\cancel{f(-1)}.$

$$\left.\begin{aligned}(2g - 3f)(1) &= 4\\(2g - 3f)(0) &= 5\\(2g - 3f)(-1) &= 2\end{aligned}\right\} \Rightarrow 4 + 5 + 2 = 11 \checkmark$$

۲- ②

$$\left.\begin{aligned}&6 - 1 = 5 \Rightarrow R = [5, +\infty)\\&1 + 3 = 4 \Rightarrow R_g = (-\infty, 4]\end{aligned}\right\} \Rightarrow (-\infty, 4] \cup [5, +\infty) \checkmark$$

۳- ②

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

	-1		3	
$-$		$+$		$-$

$\Rightarrow (-1, 3)$

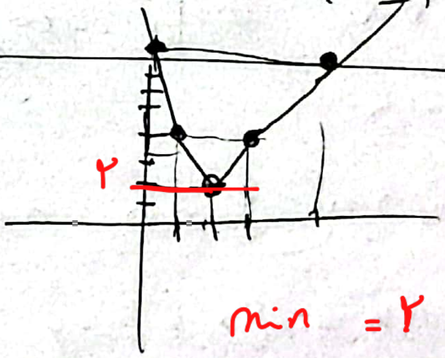
$\Rightarrow \sqrt{3 - (-1)} = \sqrt{4} = 2 \checkmark$

۴- ۱,۷۵

$4 \to 8 \quad 2 \to 2 \quad 6 \to 8$

$3 \to 4 \quad 1 \to 4$

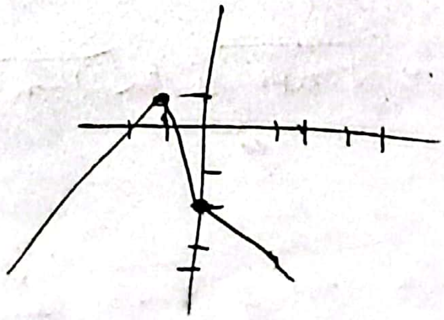
کمترین مقدار تابع؟



$min = ۲$

۵- ②

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



$R = (-\infty, 1] \checkmark$

۶ -

اگه $m = 4$ باشه ۱۳ زیر حذف میشه و دیگه $\mathbb{R}$ نیست پس $m = \{1, 2, 3\}$

(۱/۷۵)

$$xy + y = x^2 + 5x + m \Rightarrow x^2 + (5-y)x + (m-y) = 0$$

$$\Delta \geq 0 \Rightarrow \cancel{y^2 - 10y}\quad y^2 - 6y + 25 - 4m \geq 0 \rightarrow$$ برای اینکه این همواره + باشه باید $\Delta < 0$ و $a > 0$ باشه

معادله باید ریشه داشته باشه!

$$\Rightarrow 16m - 64 \leq 0 \Rightarrow m \leq 4 \Rightarrow 1, 2, 3, 4 \to 4F$$

$\Delta < 0$ هم

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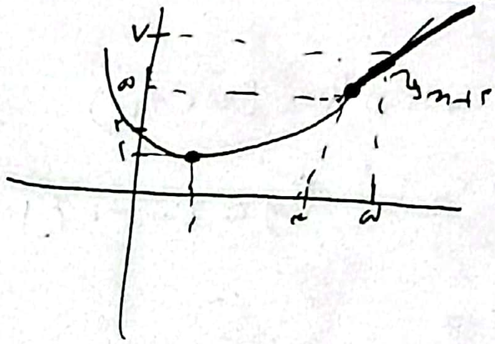
۷ -

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

$R = [1, +\infty)$ ✓



(۲)

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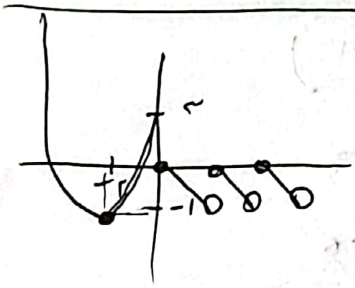
۸ -

(۲)



$\frac{-2}{2}$ $\quad$ $-4+3$

$\Rightarrow [-1, +\infty)$ ✓

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۹ -

(۲)

$$2x + 3 = 0 \Rightarrow x = \frac{-3}{2} = b \qquad a + 1 = 5 \Rightarrow a = 4$$

$$\Rightarrow ab = -\frac{3}{2} \times 4 = -6$$ ✓

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(۲)

$$\frac{f(x)}{6} - \frac{g(x)}{3} = \frac{2\sqrt{x+1} + 4\sqrt{1-x}}{6} - \frac{3\sqrt{2+2\sqrt{1-x^2}} - 2\sqrt{x+1} - 4\sqrt{1-x}}{3} \quad 10$$

$$\Rightarrow \sqrt{x+1} + 2\sqrt{1-x} = \sqrt{1+x} + 2\sqrt{1-x} - \sqrt{1-x} - \sqrt{1+x}$$

$$\Rightarrow \sqrt{1-x} \to D_f = [-1, 1]$$

$$\to R = [0, \sqrt{2}]$$ ✓