

$$D_f \cap D_g = \{-1, 0, 1\} \Rightarrow x = -1 \rightarrow g(-1) = 1, f(-1) = \sqrt{1-1} = 0 \Rightarrow 2g - 3f = (2 \times 1) - (3 \times 0) = 2$$

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

$$x = 1 \rightarrow g(1) = 2, f(1) = 0 \Rightarrow 2g - 3f = (2 \times 2) - (3 \times 0) = 4$$

$$\text{مجموعه جوابی} \rightarrow \{2, 5, 4\}$$

$$f(x) = x - 1 = 0 \Rightarrow R_f = [0, +\infty) \quad g(x) = 1 + x^2 = 4 \Rightarrow R_g = (-\infty, 4]$$

$$R_f \cup R_g = R - (4, 0)$$

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

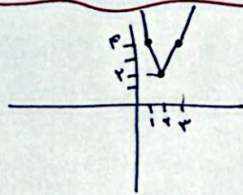
$$\frac{-1 \quad 3}{+4 \quad -4} \Rightarrow \begin{cases} a = -1 \\ b = 3 \end{cases}$$

$$\frac{-x^2 + 2x + 3}{x^2 + 1} > 0 \xrightarrow{\times (x^2 + 1)} -x^2 + 2x + 3 > 0$$

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

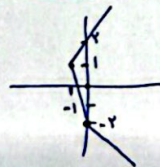
$$\sqrt{3+1} = (2)$$

1	2	3
$-f(x+1)$		$f(x-1)$
↓	↓	↓
f	2	3



$$\Rightarrow \text{مجموعه جوابی} \rightarrow (2)$$

-1	0
$x+2$	$-x-2$
↓	↓
1	-2

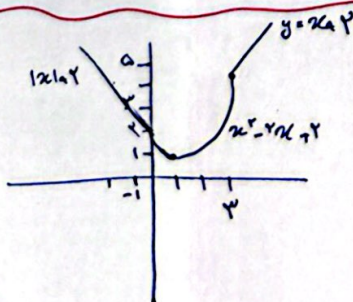


$$\Rightarrow R = [-1, +\infty)$$

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

$$x^2 + (0-y)x + m - y = 0 \xrightarrow{\Delta \geq 0} y^2 - 0y + 2 - 4m + 4y \geq 0 \rightarrow y^2 - 10y + 19m < 0$$

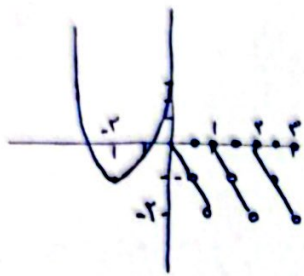
$$19m < 44 \quad m < 4 \Rightarrow m = \{1, 2, 3\} \rightarrow \text{مجموعه جوابی}$$



$$f(x) = 0$$

$$y = x^2 - 2x + 2 \quad \left| \frac{b}{2a} = 1 \right|$$

$$\left. \begin{array}{l} f(x) = 0 \\ y = x^2 - 2x + 2 \end{array} \right\} R = [1, +\infty)$$



$$y = x^2 + 2x + 3 \rightarrow \begin{vmatrix} \frac{b}{2a} & -\frac{c}{a} \\ -1 & 3 \end{vmatrix}$$

-1

$$\Rightarrow R = (-2, +\infty) - \{-1\}$$

$$\sqrt{4x+3} \rightarrow 4x+3 \geq 0 \quad x \geq -\frac{3}{4} \Rightarrow b = -\frac{3}{4} \quad \begin{matrix} x = -\frac{3}{4} & a+1-0=4 \\ & \Rightarrow a=3 \end{matrix} \quad \left\{ \begin{matrix} ab = -9 \\ -9 \end{matrix} \right.$$

$$f(x) \rightarrow \begin{matrix} x > 0 \\ x > -1 \end{matrix} \quad \begin{matrix} -x+1 > 0 \\ x \leq 1 \end{matrix} \quad \left\{ \begin{matrix} 1 \\ 1 \end{matrix} \right\} \rightarrow D_f = \{1\} \Rightarrow f(1) = 2\sqrt{2}$$

-10

$$D_f = D_g \Rightarrow D_g = \{1\} \rightarrow f(x) + g(x) = 2\sqrt{2+2\sqrt{1-1}} = 2\sqrt{2}$$

$$2\sqrt{2} + g(1) = 2\sqrt{2} \Rightarrow g(1) = \sqrt{2} \quad \Rightarrow y = \frac{f(x)}{x} - \frac{g(x)}{x} = \frac{2\sqrt{2}}{x} - \frac{\sqrt{2}}{x} = 0$$

$$\hookrightarrow (1, 0) \Rightarrow 0 = 0$$