①

الف) $D_f : [0, +\infty)$ $D_g = \mathbb{R}$ $D_f \neq D_g$ برابر نیست

ب) $\Delta < 0$ $D_f = \mathbb{R}$ $D_g = \mathbb{R}$

$25 - 28 < 0$ برابرند

$$\frac{x^2 + 4x + 3 + x + 4}{x^2 + 5x + 7} = 1$$

ج) $2\sin x - 3 \neq 0$ $D_f = \mathbb{R}$ $D_g = \mathbb{R}$

$\sin x \neq \frac{3}{2}$ برابرند

$$\frac{2\sin x\,(2\sin x - 3)}{2\sin x - 3} = 2\sin x$$

د) $D_f = \mathbb{R} - \{0\}$ $D_g = \mathbb{R} - \{0\}$ برابرند

②

الف) $D_f = \mathbb{R}$ $D_g = \mathbb{R}$ برابرند

$f(x) = g(x) = 0$

ب) $D_f = \mathbb{R} - \{0\}$ $D_g = \mathbb{R} - \{0\}$ برابرند

$$\frac{1}{[2x]} = \frac{1}{2[x]}$$

ج) $D_f = \phi$ $D_g = \mathbb{R}^-$ $D_f \neq D_g$ برابر نیست

)) $D_f = \mathbb{R}$ $D_g = \mathbb{R}$ برابرند

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

۲

$$f(x)+g(x) = x^2+x+1$$
$$f(x)-g(x) = x^2-x+1$$
$$2f(x) = 2x^2+2$$
$$f(x) = x^2+1$$
$$g(x) = x$$

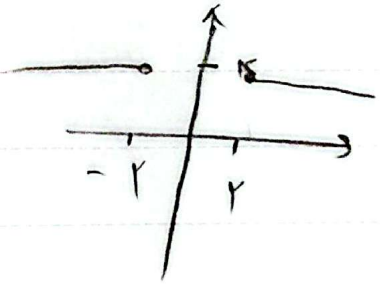
۴

$$(x-\sqrt{x^2-4})\cdot(x+\sqrt{x^2-4}) = x^2-x^2+4 = 4$$

$$(x-2)(x+2) \geq 0$$

	-2		2	
	$+$	0	$-$	0 $+$

$$(-\infty,-2]\cup[2,+\infty)$$



۵

$$\frac{ax+2}{x^2-mx+n} = \frac{x-b}{2x^2-3x-5}$$

$$2x^2-3x-5 = (x-5)(x+2)$$

ریشه‌ها $5, -1$

$$\frac{5}{2}$$

$$(x-\tfrac{5}{2})(x+1) = x^2-mx+n$$

$$x-\tfrac{3}{2}x-\tfrac{5}{2} = x^2-mx+n \Rightarrow n=-\tfrac{5}{2} \quad m=\tfrac{3}{2}$$

$$2(ax+2) = x - b$$

$$a = \frac{1}{2}$$
$$b = -4$$

$$am - bn = \frac{1}{2} \times \frac{3}{2} - \left(-\frac{5}{2} \times -4\right) =$$

$$\boxed{\frac{-37}{2}}$$

$$\frac{bx+2}{8x+b} = c$$

$$cb + 8cx = bx + 2$$

$$8c = b$$
$$cb = 2 \rightarrow 8c^2 = 2 \rightarrow c = \pm\frac{1}{2} \Rightarrow b = \pm 4$$

$$8x + b \neq 0$$
$$8x \pm 4 \neq 0$$
$$x \neq \pm\frac{1}{2} = a$$

$$\frac{ab}{c} = \pm 4 \rightarrow \text{جواب}$$

$$\frac{2g}{g+f} = \{(2,1)(3,2)(-1,4)\}$$

$$f = \{(2,8)(3,-2)(-1,+2)(0,\frac{1}{4})\}$$

$$R_f = \{1, 2, 4\}$$

(۸)

$a = d_{x=-1}$

$2a - 2b = 1$

$-2 - 2b = 1$

$-2b = 3$

$b = -2$

$c = a - 2b = -1 + 4 = 3$

$-1 + 3 = 2$

(۹)

$\sqrt{-(x^2 - x + m)} = \sqrt{-(x^2 - x + m)} = 0$

$\Delta = 1 - 4m = 0$

$\frac{1}{4} = m \Rightarrow \sqrt{(x - \frac{1}{2})^2} = 0$

$a = \frac{1}{2}$

$b = 0$

$a + b = \frac{1}{2} + 0 = \frac{1}{2}$

(۱۰)

$$\frac{2x + a}{x^2 + 2x + b} = \frac{2}{x - c}$$

$$\frac{2(x + \frac{a}{2})}{(x + \frac{a}{2})^2} = \frac{2}{x - c}$$

$x + \frac{a}{2} = x + 2$

$\frac{a}{2} = 2$

$a = 4$

$c = -2$

$b = 9$

$a + b + c = 9 - 2 + 4 = 11$