

۱) $f(x) = \sqrt{x|x|}$, $g(x) = x \rightarrow D_f = \mathbb{R}^+ + \{0\}$ و $D_g = \mathbb{R}$ برابر نیست

۲) $f(x) = \frac{(x+1)(x+1) + x+1}{x^2 + x + 1}$, $g(x) = 1 \rightarrow f(x) = \frac{x^2 + 2x + 2}{x^2 + x + 1} \neq 1$ برابر نیست (صاف خط نیست)

۳) $f(x) = \frac{x \sin^2 x - x \sin x}{x \sin^2 x + x \sin x}$, $g(x) = x \sin x \rightarrow D_f = \mathbb{R}$, $D_g = \mathbb{R}$ برابر نیست (صاف خط نیست)

۴) $f(x) = \frac{x}{|x|}$, $g(x) = \frac{|x|}{x} \rightarrow D_f = \mathbb{R} - \{0\}$, $D_g = \mathbb{R} - \{0\}$ برابر نیست (صاف خط نیست)

۵) $f(x) = \left[\frac{x^2}{x^2+1} \right]$, $g(x) = [x - [x]] \rightarrow D_f = \mathbb{R}$, $D_g = \mathbb{R}$ برابر نیست (صاف خط نیست)

۶) $f(x) = \frac{1}{[x]}$, $g(x) = \frac{1}{x}$ برابر نیست

$\Rightarrow x = \frac{1}{x} \rightarrow f(x) = 1$, $g(x) = \frac{1}{x} \rightarrow$ تقریب نیست برابر نیست

۷) $f(x) = \frac{1}{\sqrt{x-1}}$, $g(x) = \frac{1}{\sqrt{x+1}}$ برابر نیست

۸) $f(x) = \frac{x^2 - x}{x-1}$, $g(x) = \frac{x(x-1)}{x-1} = x$, $h(x) = x^2 + x \rightarrow D_f = \mathbb{R}$, $D_g = \mathbb{R}$ برابر نیست (صاف خط نیست)

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

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

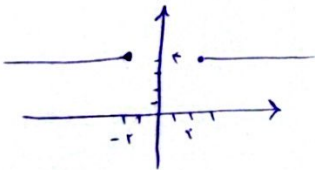
$2f(x) = 2x^2 + 2 \rightarrow f(x) = x^2 + 1$

$g(x) = x$

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

$= x^4 + 1 + 2x^2 - x^2 = x^4 + x^2 + 1$

$D_f = D_g \rightarrow x^2 \geq 1 \rightarrow x \geq 1$, $x \leq -1 \rightarrow D_f = D_g = D_{f \times g} = (-\infty, -1] \cup [1, +\infty)$



$ax + r = k(x - b)$, $x^2 - mx + n = k(rx^2 - rx - a)$

$am = \frac{1}{r} \times \frac{r}{r} = \frac{r}{r}$

$bn = -rx - \frac{a}{r} = 1$

$am - bn = \frac{r}{r} - 1 = \frac{-r}{r}$

$1 = rk, k = \frac{1}{r}$

$n = \frac{1}{r}(-a) = \frac{-a}{r}$, $m = \frac{1}{r}(-r) = \frac{-r}{r}$

$r = -\frac{1}{r}b \rightarrow b = -r$, $a = \frac{1}{r}$

از ضریب x^2 در معادله

از ضریب x

از صورت

$Dg: \mathbb{R} \setminus \{a\} \rightarrow a = -\frac{b}{\lambda}$ $\rightarrow b + \lambda x = c(\lambda x + b) \rightarrow b + \lambda c = c(\lambda c) + \lambda c^2 \rightarrow c^2 + \frac{1}{\lambda} c + \frac{1}{\lambda} = 0$ if $c = \frac{1}{\lambda} \rightarrow b + \lambda c = t, a = -\frac{b}{\lambda} = -\frac{t}{\lambda} = -\frac{1}{\lambda} \rightarrow \frac{ab}{c} = \frac{-\frac{1}{\lambda} \times t}{\frac{1}{\lambda}} = (-t)$ if $c = -\frac{1}{\lambda} \rightarrow b + \lambda c = -t, a = -\frac{b}{\lambda} = \frac{t}{\lambda} = \frac{1}{\lambda} \rightarrow \frac{ab}{c} = \frac{\frac{1}{\lambda} \times t}{-\frac{1}{\lambda}} = (-t)$	6
$f(x) = \{(1, 2), (2, 4), (3, 6), (0, \frac{1}{2})\} \rightarrow fg = \{(1, 2), (2, 4), (-1, -2), (2, 0)\}$ $g(x) = \{(2, 4), (3, 6), (-1, -2), (2, 0)\} \rightarrow f+g = \{(2, 4), (3, 6), (-1, -2)\}$ $\frac{fg}{f+g} = \{(2, \frac{4}{2}), (3, \frac{6}{3}), (-1, \frac{-2}{-1})\} \Rightarrow \{(2, 2), (3, 2), (-1, 2)\}$	7
$a = d = -1$ $2a - 3b = 1 \rightarrow 2(-1) - 3b = 1 \rightarrow b = -1$ $a - 2b = c \rightarrow -1 - 2(-1) = c \rightarrow c = 1$ $d + c = -1 + 1 = 0$	8
$f(x) = \sqrt{-x^2 + 4x + 5} \rightarrow$ <i>نقطة الصفر</i> $\Delta = 0$ $-x^2 + 4x + 5 = 0 \rightarrow \Delta = 0 \rightarrow b^2 - 4ac = 0 \rightarrow 16 - 4 \times 5 = 0 \rightarrow m = \frac{1}{4}$ $-x^2 + 4x - \frac{1}{4} = 0 \rightarrow x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-4 \pm \sqrt{16 - 4 \times (-\frac{1}{4})}}{2 \times (-1)} = \frac{-4 \pm \sqrt{16.25}}{-2} = \frac{-4 \pm 4.12}{-2} \rightarrow a = \frac{1}{4}$ $a + b = \frac{1}{4} + 0 = \frac{1}{4}$	9
$Dg: \mathbb{R} \setminus \{c\} \rightarrow Dg: \mathbb{R} \setminus \{c\} \rightarrow$ <i>نقطة الصفر</i> $x^2 + 4x + b = 0 \rightarrow b^2 - 4ac = 0 \rightarrow 16 - 4b = 0 \rightarrow b = 4$ $(x + 2)^2 = 0 \rightarrow x = -2 \rightarrow c = -2$ $\frac{x^2 + 4}{x^2 + 4x + 4} = \frac{x^2}{x^2 + 4} \rightarrow x^2 + 4x + 4 = x^2 + 4x + 4 \rightarrow 4 + 4 = 8, a = 4$ $\Rightarrow a + b + c = 4 + 4 - 2 = 6$	10