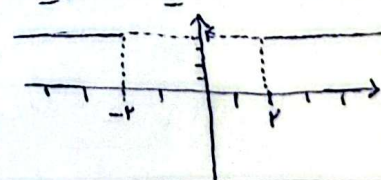


نام و نام خانوادگی: ... پاسخنانه تشریحی تکلیف شماره ... کلاس ...

الف) $f(x) = \sqrt{x x }$, $g(x) = x$ $\Rightarrow D_f = [0, +\infty)$ $D_g = \mathbb{R}$ $\Rightarrow$ برابر نیست ب) $f(x) = \frac{(x+3)(x+1)+x+2}{x^2+5x+4}$, $g(x) = 1$ $D_f = \mathbb{R}$ $D_g = \mathbb{R}$ $\Rightarrow$ برابر اند ج) $f(x) = \frac{3\sin^2 x - 4\sin x}{2\sin x - 3}$, $g(x) = 2\sin x$ $D_f = \mathbb{R}$ $D_g = \mathbb{R}$ $\Rightarrow$ برابر اند $\sin x \neq \frac{3}{2}$ د) $f(x) = \frac{x}{ x }$, $g(x) = \frac{ x }{x}$ $D_f = \mathbb{R} - \{0\}$ $D_g = \mathbb{R} - \{0\}$ $\Rightarrow$ برابر اند	۱
الف) $f(x) = \left[\frac{x}{x+1}\right]$, $g(x) = [x - [x]]$ $D_f = \mathbb{R}$ $D_g = \mathbb{R}$ $\Rightarrow$ برابر اند ب) $f(x) = \left[\frac{1}{x}\right]$, $g(x) = \frac{1}{2[x]}$ $\Rightarrow x = \frac{2}{3}$ $\left[\frac{1}{x}\right] = 1$ $\frac{1}{2[x]} = 0.5$ $\Rightarrow$ برابر نیست ج) $f(x) = \frac{1}{\sqrt{x-1}}$, $g(x) = \frac{1}{\sqrt{ x -x}}$ $D_f = \emptyset$ $D_g = (-\infty, 0]$ $\Rightarrow$ برابر نیست د) $f(x) = \begin{cases} \frac{x^2-x}{x-1} & x \neq 1 \\ 1 & x = 1 \end{cases}$, $g(x) = x^2+x$ $f(x) = \frac{x(x-1)(x+1)}{x-1} = x(x+1) = x^2+x$ $\Rightarrow$ برابر اند	۲
$f(x) + g(x) = x^2 + x + 1$, $f(x) - g(x) = x^2 - x + 1$ $\Rightarrow 2x^2 + 2$ $\Rightarrow f(x) = x^2 + 1$ $f(x) + g(x) = (x^2 + 1) + g(x) = x^2 + x + 1 \Rightarrow g(x) = x$ $f'(x) - g'(x) = (2x) - 1 = 2x - 1$	۳
$f(x) = x - \sqrt{x^2 - 4}$, $g(x) = x + \sqrt{x^2 - 4}$ $f \cdot g = (x - \sqrt{x^2 - 4})(x + \sqrt{x^2 - 4}) \Rightarrow x^2 - (x^2 - 4) = 4$ $y = 4$, $D_f = (-\infty, -2] \cup [2, +\infty)$ 	۴
$x^2 - mx + n = k(2x^2 - 3x - 5)$ $\Rightarrow am - bn = -\frac{37}{4}$ x^2 ضریب $\Rightarrow 1 = 2k \Rightarrow k = \frac{1}{2}$ $x^2 - mx + n = \frac{1}{2}(2x^2 - 3x - 5) = x^2 - \frac{3}{2}x - \frac{5}{2}$ $m = \frac{3}{2}$, $n = -\frac{5}{2}$ $ax + 2 = k(x - b) = \frac{1}{2}(x - b)$ $2ax + 4 = x - b \Rightarrow 4 = -b \Rightarrow b = -4$, $a = \frac{1}{2}$	۵

$\frac{bx+r}{\lambda x+b} = c \Rightarrow bx+r = c(\lambda x+b) \rightarrow bx+r = \lambda cx + bc$ $b = \lambda c \Rightarrow c = \frac{b}{\lambda} \rightarrow r = bc \Rightarrow r = b \times \frac{b}{\lambda} = \frac{b^2}{\lambda} \Rightarrow b^2 = 14 \quad \textcircled{f}$ $\Rightarrow b = \pm r \rightarrow \boxed{b=r \rightarrow c=\frac{1}{r}} \quad \boxed{b=-r \rightarrow c=-\frac{1}{r}}$ $\lambda x+b=0 \Rightarrow \lambda \alpha+b=0 \Rightarrow \alpha = -\frac{b}{\lambda} \Rightarrow \boxed{b=r \rightarrow \alpha = -\frac{1}{r}} \quad \boxed{b=-r \rightarrow \alpha = \frac{1}{r}}$ $\frac{\alpha b}{c} \Rightarrow \frac{\frac{1}{r} \times r}{\frac{1}{r}} = \boxed{r}, \quad \frac{\alpha b}{c} \Rightarrow \frac{\frac{1}{r} \times (-r)}{-\frac{1}{r}} = \boxed{-r} \quad \text{etc. } \frac{\alpha b}{c} \in \{1, -r, r\}$	6
$f-1 = \{(-1, 3), (2, 7), (3, -2), (0, 0)\} \Rightarrow f = \{(-1, 2), (2, 4), (3, -1), (0, \frac{1}{3})\}$ $g = \{(2, 4), (3, 4), (-1, -4), (2, 0)\} \Rightarrow fg = \{(2, 1), (3, 12), (-1, -1), (2, 0)\}$ $\frac{fg}{f+g} = \{(-1, \frac{1}{3}), (2, \frac{1}{2}), (3, \frac{3}{2})\}$ $\boxed{R_{fg} = \{1, 3, r\}}$	7
$f = \{(2, a), (-2, 3a - 2b), (c, d), (2, d)\}$ $g = \{(2, -1), (-2, 1), (a - 2b, d)\}$ $a = -1$ $d = -1$ $3a - 2b = 1 \Rightarrow 3(-1) - 2b = 1 \Rightarrow -3 - 2b = 1 \Rightarrow 2b = -4 \Rightarrow b = -2$ $a - 2b = -1 - 3(-2) = d \Rightarrow c = d$ $d + c = d + (-1) = \boxed{r}$	8
$f(x) = \sqrt{-x^2 + x - m} \quad g(x) = \{(a, b)\}$ $-x^2 + x - m \geq 0 \Rightarrow x^2 - x + m \leq 0$ $\Delta = (-1)^2 - 4(1)(m) = 1 - 4m = 0 \Rightarrow m = \frac{1}{4}$ $x^2 - x + \frac{1}{4} = 0 \Rightarrow x = \frac{1}{2} \Rightarrow f\left(\frac{1}{2}\right) = 0$ $g(x) = \{(a, b)\} \Rightarrow \left\{\left(\frac{1}{2}, 0\right)\right\} \Rightarrow \boxed{a+b = \frac{1}{2}}$	9
$f(x) = \frac{rx+a}{x^2+4x+b}, \quad g(x) = \frac{r}{x-c} \quad \boxed{a+b+c=12} \quad \textcircled{f}$ $(x^2+4x+b)(x-c) = rx^2 - rcx + ax - ac = rx^2 + (a-rc)x - ac$ $r(x^2+4x+b) = rx^2 + 4rx + rb$ $\Rightarrow a-rc = 12 \Rightarrow a = 12+rc$ $\Rightarrow -ac = rb \Rightarrow b = -\frac{ac}{r} \Rightarrow b = -(c^2+4c) \quad a = r(-c^2+12-c)$ $x^2+4x+b = (x+\frac{a}{r})(x-c) \Rightarrow -\frac{a}{r} = c \quad -\frac{1}{r}(rc+12) = c \Rightarrow \boxed{c=-3}$ $\boxed{a+b+c=12}$	10