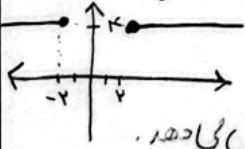


نام و نام خانوادگی هجسته دبییری (تبریز) پاسخنامه تشریحی تکلیف شماره کلاس دبیران: دم
ع، د، ۵

$f(x) = \frac{(x+3)(x+1)+x+4}{x^2+5x+6} \rightarrow x^2+5x+6 \neq 0$ $\rightarrow \Delta > 0 \rightarrow \sqrt{b^2-4ac} \rightarrow \sqrt{25-24} \rightarrow 1$ $f(x) = \frac{R}{R} = 1$ $g(x) = 1$ $f(x) = \frac{x}{ x } \rightarrow R - \{0\}$ $g(x) = \frac{ x }{x} \rightarrow R - \{0\}$ بام برابر است ✓	$f(x) = \sqrt{x x } = x \geq 0$ $g(x) = x = R$ $f(x) = \frac{4\sin^2 x - 4x}{4\sin x - 3} \rightarrow 4\sin x - 3 \neq 0$ $4\sin x \neq 3 \rightarrow \sin x \neq \frac{3}{4} \rightarrow R \rightarrow \sin$ $g(x) = 4\sin x \rightarrow R$ بام برابر است ✓	الف) $f(x) = \left[\frac{x^2}{x^2+1} \right]$ و $g(x) = [x - [x]]$ $\rightarrow$ دامنه $= 0$ $f(x) = g(x)$ ✓ ب) $f(x) = \frac{1}{[x]}$ $\rightarrow Df = R - \{0\}$ و $g(x) = \frac{1}{[x]}$ $\rightarrow Df = R - \{0\}$ $f(x) \neq g(x)$ X ج) $f(x) = \frac{1}{\sqrt{x- x }}$ و $g(x) = \frac{1}{\sqrt{ x -x}}$ $f(x) = \emptyset \rightarrow$ تنه $\cdot$ و $g(x) = (-\infty, 0)$ $\rightarrow f(x) \neq g(x)$ X د) $f(x) = \frac{x^2-x-6}{x-1}$ و $g(x) = x^2+x$ $f(x) = 1$ و $g(x) = 2$ $f(x) \neq g(x)$ X
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$f(x) + g(x) = x^2 + x + 1$, $f(x) - g(x) = x^2 - x + 1 \rightarrow f^2(x) - g^2(x)$
 $f(x) + g(x) + f(x) - g(x) = x^2 + x + 1 + x^2 - x + 1 \rightarrow 2f(x) = 2x^2 + 2$
 $\rightarrow f(x) = x^2 + 1$
 $g(x) = (x^2 + x + 1) - f(x) \rightarrow g(x) = x^2 + x + 1 - x^2 - 1 \rightarrow g(x) = x$
 $f^2(x) - g^2(x) = (x^2 + 1)^2 - (x^2) = x^4 + 1 + 2x^2 - x^2 = x^4 + x^2 + 1$

$f(x) = x - \sqrt{x^2 - 4}$ و $g(x) = x + \sqrt{x^2 - 4}$
 $f(x) \times g(x) = (x - \sqrt{x^2 - 4})(x + \sqrt{x^2 - 4}) = x^2 - x^2 + 4 = 4$

 $|x| \geq 2$, $|x| < 2$ $\sqrt{x^2 - 4}$
 $D = (-\infty, -2] \cup [2, +\infty)$

$f(x) = \frac{ax+b}{x^2-mx+n}$ و $g(x) = \frac{x-b}{x^2-3x-4}$ $\xrightarrow{x \neq \frac{1}{2}}$ $\frac{\frac{1}{2}(x-b)}{x^2 - \frac{3}{2}x - \frac{4}{2}} = \frac{ax+b}{x^2-mx+n}$
 $x^2 - \frac{3}{2}x - \frac{4}{2} = x^2 - mx + n \rightarrow n = -\frac{4}{2}$, $m = \frac{3}{2}$ و $(\frac{1}{2}x - \frac{1}{2}b) = ax + b$
 $\rightarrow a = \frac{1}{2}$ و $-\frac{1}{2}b = 2 \rightarrow b = -4$ $am - bn = (\frac{1}{2} \times \frac{3}{2}) - (-\frac{4}{2} \times \frac{1}{2})$
 $= \frac{3}{4} - 10 = -\frac{37}{4}$ ✓

$$f(x) = \frac{bx+c}{ax+d} \quad , \quad g(x) = c \quad \text{D}G = \mathbb{R} - \{a\} \quad a = -\frac{c}{a} = -\frac{1}{4}, \quad b = \frac{c}{a} = \frac{1}{4}$$

$$\rightarrow ax+b \neq 0 \rightarrow x \neq -\frac{b}{a} \rightarrow a \neq -\frac{b}{a} \quad a = \frac{1}{4}, \quad b = -\frac{c}{a} = -\frac{1}{4}$$

$$bx+c = c(ax+b) \rightarrow \{b=ac, c=bc\}, \quad b^2 = 1, \quad b = \pm 1$$

$$\frac{ab}{c} = \frac{(-\frac{1}{4}) \times \frac{1}{4}}{\frac{1}{4}} = (-1) \quad \downarrow \quad \frac{ab}{c} = \frac{\frac{1}{4} \times (-\frac{1}{4})}{-\frac{1}{4}} = (1)$$

$$2f-1 = \{(-1, 2), (1, 2), (3, -2), (0, 0)\}, \quad g = \{(2, 4), (3, 4), (-1, -4), (0, 0)\}$$

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

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

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

$$f = \{(2, a), (-3, 3a-2b), (c, d), (2, d)\}, \quad g = \{(2, -1), (-3, 1), (a-3b, d)\}$$

$$(2, a) \cap (2, d) = (2, -1) \rightarrow a = d = -1$$

$$3a-2b = 1 \rightarrow (3 \times -1) - 2b = 1 \rightarrow b = -2$$

$$a-3b = c \rightarrow -1 - (3 \times -2) = c \rightarrow c = 5 \quad d+c = -1+5 = 4$$

$$\rightarrow 1-4x-1 \times n = 0 \quad \Delta = b^2 - 4ac \quad \text{چون } a \text{ یکن عدد است پس } \Delta \text{ باید صفر شود.}$$

$$1+4n = 0 \rightarrow n = -\frac{1}{4} \rightarrow -m = \frac{1}{4} \Rightarrow m = -\frac{1}{4}$$

$$f(x) = \sqrt{-x^2+x-m} = \sqrt{-x^2+x-\frac{1}{4}} \rightarrow \frac{-1 \pm \sqrt{1-4x-1}}{-2} = \frac{-1 \pm \sqrt{-4x}}{-2} = \frac{-1 \pm 2\sqrt{-x}}{-2} = \frac{1 \mp 2\sqrt{-x}}{2}$$

$$a = \frac{1}{2}, \quad b = -\frac{2\sqrt{-x}}{2} = -\sqrt{-x}$$

$$f(x) = \frac{4x+a}{x^2+4x+b} \quad , \quad g(x) = \frac{4}{x-c} \rightarrow \frac{4x}{x^2-cx}$$

$$\rightarrow \frac{4x+a}{x^2+4x+b} = \frac{4x}{x^2-cx} \rightarrow 4x+a = 4x \rightarrow a=0$$

$$x^2+4x+b = x^2-cx \rightarrow b=0, \quad c=-4$$

$$a+b+c = 0+0+(-4) = -4$$