

۱۸۷۵

نام و نام خانوادگی: شماره: کلاس: همسر: B

پاسخنامه تشریحی تکلیف شماره ۱۸۷۵
 $D_f = \mathbb{R}$ $D_g = \mathbb{R}$ $f(x) = \sqrt{x}$ $g(x) = x$ $f(x) = \sqrt{x}$ $g(x) = x$ $D_f = \mathbb{R}$ $D_g = \mathbb{R}$ $f(x) = \sqrt{x}$ $g(x) = x$ $D_f = \mathbb{R}$ $D_g = \mathbb{R}$

۱) $f(x) = (x+1)(x+1) + x + 1$ و $g(x) = 1$ $D_f = D_g$

۲) $f(x) = \frac{x \sin x - \sin x}{x \sin x - 1}$ و $g(x) = \sin x$ $D_f = D_g$

۳) $f(x) = \frac{x}{|x|}$ و $g(x) = \frac{|x|}{x}$ $D_f = D_g$

۴) $f(x) = \left[\frac{x}{x+1} \right]$ و $g(x) = [x - [x]]$ $D_f = \mathbb{R}$ $D_g = \mathbb{R}$ $D_f = D_g$

۵) $f(x) = \frac{1}{[x]}$ و $g(x) = \frac{1}{x - [x]}$ $D_f = \mathbb{R} \setminus \{0\}$ $D_g = \mathbb{R} \setminus \{0\}$ $D_f = D_g$

۶) $f(x) = \frac{1}{\sqrt{x - |x|}}$ و $g(x) = \frac{1}{\sqrt{|x| - x}}$ $D_f = D_g$

۷) $f(x) = \frac{x^2 - x}{x - 1}$ و $g(x) = \frac{x^2 + x}{x + 1}$ $D_f = D_g = \mathbb{R} \setminus \{1, -1\}$ $f(x) = g(x)$

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

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

۱۰) $f(x) + g(x) = (x^2 + 1)^2 - x^2 = x^4 + 2x^2 + 1 - x^2 = x^4 + x^2 + 1$

۱۱) $g(x) = \frac{x + \sqrt{x^2 - 1}}{a}$ $f(x) = \frac{x - \sqrt{x^2 - 1}}{b}$

$D_f = D_g \Rightarrow x^2 - 1 \geq 0 \Rightarrow x^2 \geq 1$

$f \cdot g = (x - \sqrt{x^2 - 1})(x + \sqrt{x^2 - 1}) = x^2 - (x^2 - 1) = 1$

$am - bn = ?$ $g(x) = \frac{x - b}{x^2 - x - a}$ $f(x) = \frac{x + 1}{x^2 - x - 1}$

$x^2 - x - 10$ $(x - 5)(x + 2)$ $a = 5$ $b = -2$

$\frac{1}{x} \times \frac{x}{x} = \frac{x}{x} = 1$ $\frac{1}{x} \times \frac{x}{x} = \frac{x}{x} = 1$ $\frac{1}{x} \times \frac{x}{x} = \frac{x}{x} = 1$

$$f(x) = g(x) \Rightarrow c = \frac{bx+r}{ax+b} \Rightarrow bx+r = acx+cb \Rightarrow cb=r$$

$$f(x) = \frac{bx+r}{ax+b} \quad g(x) = c \quad D_g = \mathbb{R} - \{a\} \quad \frac{ab}{c} = ?$$

$$bx+r = acx+cb$$

$$\frac{ab}{c} = \pm r$$

$$b = \frac{r}{c} \Rightarrow c = \frac{b}{\frac{r}{c}} \Rightarrow cb = r \Rightarrow cb = \left(\frac{b}{\frac{r}{c}}\right) b = \frac{b^2}{\frac{r}{c}} = r \Rightarrow b^2 = \frac{r^2}{c} \Rightarrow b = \pm \frac{r}{\sqrt{c}}$$

$$b = r \Rightarrow \frac{rx+r}{ax+r} = \frac{1}{r} \Rightarrow \frac{ab}{c} = \frac{-\frac{1}{r} \times r}{\frac{1}{r}} = -1$$

$$b = -r \Rightarrow \frac{-rx+r}{ax-r} = \frac{1}{r} \Rightarrow \frac{ab}{c} = \frac{\frac{1}{r} \times -r}{-\frac{1}{r}} = 1 \Rightarrow c = \pm \frac{1}{r}$$

$$f = \{(-1, 1), (1, 1), (1, -1), (0, 0)\} \rightarrow F = \{(-1, 1), (1, 1), (1, -1), (0, 1)\}$$

$$g = \{(1, 1), (1, -1), (-1, -1), (0, 0)\}$$

$$\frac{fg}{f+g} = \frac{\{(-1, -1), (1, 1), (1, 1), (0, 0)\}}{\{(-1, -2), (1, 1), (1, 1)\}} = \{(-1, -1), (1, 1), (1, 1)\} \Rightarrow R_{\frac{fg}{f+g}} = \{(-1, -1), (1, 1), (1, 1)\}$$

$$f = \{(1, a), (-1, a-1b), (c, a), (1, b)\}$$

$$g = \{(1, -1), (-1, 1), (a-1b, a)\} \quad a = -1, b = -1$$

$$f = g$$

$$a-1b = c \Rightarrow c = -1 - 1 = -2$$

$$1a-1b = 1 \Rightarrow -1-1b = 1 \Rightarrow -1b = 2 \Rightarrow b = -2 \quad a+c = -1-2 = -3$$

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

$$b = \sqrt{-\frac{1}{4} + \frac{1}{4} - \frac{1}{4}} = \sqrt{0} = 0$$

$$x^2-x+\frac{1}{4} \leq 0$$

$$c+b = \frac{1}{4} + 0 = \frac{1}{4}$$

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

$$f(x) = \frac{rx+a}{x^2+4x+b}$$

$$g(x) = \frac{r}{x-c}$$

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

$$f(x) = \frac{rx+a}{(x+\frac{a}{r})(x-c)} \Rightarrow D_f = \mathbb{R} - \{c, -\frac{a}{r}\}$$

$$D_f = \mathbb{R} - \{c, -\frac{a}{r}\}$$

$$a+b+c = ? \Rightarrow (rc+1r) - \frac{a}{r} = 1 \Rightarrow 4-1 = 3$$

$$D_f = D_g \Rightarrow D_g = \mathbb{R} - \{c\} \Rightarrow c = -\frac{a}{r} \Rightarrow (rx+a)(x-c) = rx^2+1rx+b$$

$$-ac = b \Rightarrow b = \frac{-ac}{r} = \frac{-rcr-1rc}{r} \quad rx^2+(a-rc)x-ac = rx^2+1rx+b$$

$$-rc = 1rc \Rightarrow c = -1 \quad b = c^2 - 4c \quad a = -rc = rc + 1r$$