

نام و نام خانوادگی: محمد حسن

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پاسخنامه سریبی: تکلیف شماره کلاس: دهم

الف) $f(x) = \sqrt{x} \sin x \rightarrow x \sin x \geq 0 \rightarrow \frac{0}{x} + \infty \rightarrow [0, +\infty)$
 $g(x) = x \rightarrow \mathbb{R}$

ب) $g(x) \rightarrow D_g = 1$

$f(x) \rightarrow x^2 + 5x + 7 \neq 0 \rightarrow (x+2)(x+3) + 1 \neq 0 \rightarrow D_f = \mathbb{R}$

ج) $f(x) = \frac{4 \sin^2 x - 4 \sin x}{2 \sin x - 2} \rightarrow \frac{4 \sin^2 x - 4 \sin x}{2 \sin x - 2} \neq 0$
 $g(x) = 2 \sin x \rightarrow \mathbb{R} \neq 1 \rightarrow D_g = \mathbb{R} - \{1\}$

د) $f(x) = 2 \sin x \rightarrow \mathbb{R} \neq 1 \rightarrow D_f = \mathbb{R}$
 $g(x) = 2 \sin x \rightarrow \mathbb{R} \neq 1 \rightarrow D_g = \mathbb{R}$

ه) $f(x) = \frac{1}{[2x]} \Rightarrow [2x] \neq 0 \Rightarrow D_f = \mathbb{R} - [0, 0.5)$

و) $g(x) = \frac{1}{x} \Rightarrow [x] \neq 0 \Rightarrow D_g = \mathbb{R} - [0, 1)$

ز) $f(x) = \frac{1}{\sqrt{x-1}} \Rightarrow x-1 > 0 \Rightarrow x > 1 \Rightarrow D_f = \emptyset$

ح) $g(x) = \frac{1}{\sqrt{x+1}} \Rightarrow x+1 > 0 \Rightarrow x > -1 \Rightarrow D_g = \mathbb{R} - (-1, -1)$

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

ی) $2f(x) = 2x^2 + 2 \Rightarrow f(x) = x^2 + 1$
 $3 \Rightarrow g(x) = x$

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

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

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