

Answers to Classwork – Operations on Functions

1.	$(f+g)(x) = 5x - 2$	$D_{f+g} = (-\infty, \infty)$
	$(f-g)(x) = x + 4$	$D_{f-g} = (-\infty, \infty)$
	$(fg)(x) = 6x^2 - 7x - 3$	$D_{fg} = (-\infty, \infty)$
	$\left(\frac{f}{g}\right)(x) = \frac{3x+1}{2x-3}$	$D_{\frac{f}{g}} = \left(-\infty, \frac{3}{2}\right) \cup \left(\frac{3}{2}, \infty\right)$
2.	$(f+g)(x) = x^2 + 2x - 1$	$D_{f+g} = (-\infty, \infty)$
	$(f-g)(x) = -x^2 + 2x - 7$	$D_{f-g} = (-\infty, \infty)$
	$(fg)(x) = 2x^3 - 4x^2 + 6x - 12$	$D_{fg} = (-\infty, \infty)$
	$\left(\frac{f}{g}\right)(x) = \frac{2x-4}{x^2+3}$	$D_{\frac{f}{g}} = (-\infty, \infty)$
3.	$(f+g)(x) = x^2 + 6x - 4$	$D_{f+g} = (-\infty, \infty)$
	$(f-g)(x) = x^2 + 4x + 8$	$D_{f-g} = (-\infty, \infty)$
	$(fg)(x) = x^3 - x^2 - 28x - 12$	$D_{fg} = (-\infty, \infty)$
	$\left(\frac{f}{g}\right)(x) = \frac{x^2 + 5x + 2}{x - 6}$	$D_{\frac{f}{g}} = (-\infty, 6) \cup (6, \infty)$
4.	$(f+g)(x) = \frac{3x+1}{(x-3)(x+2)}$	$D_{f+g} = (-\infty, -2) \cup (-2, 3) \cup (3, \infty)$
	$(f-g)(x) = \frac{x+7}{(x-3)(x+2)}$	$D_{f-g} = (-\infty, -2) \cup (-2, 3) \cup (3, \infty)$
	$(fg)(x) = \frac{2}{(x-3)(x+2)}$	$D_{fg} = (-\infty, -2) \cup (-2, 3) \cup (3, \infty)$
	$\left(\frac{f}{g}\right)(x) = \frac{2x+4}{(x-3)}$	$D_{\frac{f}{g}} = (-\infty, -2) \cup (-2, 3) \cup (3, \infty)$
5.	$(f+g)(x) = \sqrt{x} + x^2 - 4$	$D_{f+g} = [0, \infty)$
	$(f-g)(x) = \sqrt{x} - x^2 + 4$	$D_{f-g} = [0, \infty)$
	$(fg)(x) = \sqrt{x}(x^2 - 4)$	$D_{fg} = [0, \infty)$
	$\left(\frac{f}{g}\right)(x) = \frac{\sqrt{x}}{(x^2 - 4)}$	$D_{\frac{f}{g}} = [0, 2) \cup (2, \infty)$
6.	$(f \circ g)(x) = 18x^2 - 48x + 39$	$(f \circ g)(x) = x^2 - 10x + 24$
	$(g \circ f)(x) = 6x^2 + 17$	$(g \circ f)(x) = x^2 + 4x - 4$
8.	$(f \circ g)(x) = x - 2$	$(f \circ g)(x) = \frac{3x+1}{x}$
	$(g \circ f)(x) = \sqrt{x^2 - 2}$	$(g \circ f)(x) = \frac{1}{x+3}$