ACMAT117 Fall 2025
Professor Manguba-Glover
Section 5.1 Homework (HW 20) Name: _____

Due at the start of the final exam. This assignment is extra credit.

(1) If $f(x) = 2x - 3$ and $g(x) = 1 - x^2$, find:

(a) $(f+g)(3)$ (b) $(f-g)(-1)$ (c) $(fg)(0)$ (d) $\left(\frac{f}{g}\right)(2)$

(2) If $f(x) = 2x + 1$ and $g(x) = \frac{1}{x}$, find:

(a) $(f+g)(2)$ (b) $(f-g)\left(\frac{1}{2}\right)$ (c) $(fg)(4)$ (d) $\left(\frac{f}{g}\right)(0)$

(3) If $f(x) = 2x$ and $g(x) = x^2$, find the formula for

(a) $(f+g)(x)$ (b) $(f-g)(x)$ (c) $(fg)(x)$ (d) $\left(\frac{f}{g}\right)(x)$

(4) If $f(x) = x^2 - 1$ and $g(x) = x^2 + 1$, find the formula for

(a) $(f+g)(x)$ (b) $(f-g)(x)$ (c) $(fg)(x)$ (d) $\left(\frac{f}{g}\right)(x)$

(5) If $f(x) = \sqrt{x+5}$ and $g(x) = x^2$, find

(a) $(f \circ g)(2)$ (b) $(g \circ f)(-1)$

(6) If $f(x) = 2 - x$ and $g(x) = \frac{1}{x^2}$, find

(a) $(f \circ g)(x)$ (b) $(g \circ f)(x)$ (c) $(f \circ f)(x)$

(7) If $f(x) = \frac{1}{x+1}$ and $g(x) = 5x$, find

(a) $(f \circ g)(x)$ (b) $(g \circ f)(x)$ (c) $(f \circ f)(x)$

(8) Find $f(x)$ and $g(x)$ so that $h(x) = (g \circ f)(x)$

(a) $h(x) = \sqrt[3]{x^2+1}$ (b) $h(x) = 4(2x+1)^3$ (c) $h(x) = \frac{1}{x+2}$