ACMAT117 Fall 2024
Professor Manguba-Glover
Section 5.1 Homework (HW 20) Name: _____

Show all work and simplify all answers before circling/boxing them. If you do the problem incorrectly, or don't show sufficient work, you will be asked to rewrite the problem for full credit.

Due next class. This assignment is graded on completion.

(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) $h(x) = \frac{1}{x+2}$