

Name: \_\_\_\_\_

MATH 104

Spring 2023

HW 1: Due 05/04

*“The function of leadership is to produce more leaders, not more followers.”*

*–Ralph Nader*

**Problem 1.** (10pt) Define a function  $f(x)$  by  $f(x) = x^2 + 4x - 2$ . Showing all your work and simplifying as much as possible, find the following:

(a)  $f(0)$

(b)  $f(-2)$

(c)  $f(x - 2)$

(d)  $f(x + h)$

(e)  $\frac{f(x + h) - f(x)}{h}$

**Problem 2.** (10pt) Let  $f(x) = 2x - 5$  and  $g(x) = x^2 - 6$ . Showing all your work, compute the following:

(a)  $(f - g)(-2)$

(b)  $(fg)(1)$

(c)  $\left(\frac{f}{g}\right)(3)$

(d)  $(f \circ g)(0)$

(e)  $(g \circ f)(0)$