

**WRITE YOUR NAME:**

MAC 2241 Homework 1

Due in class, Friday January 26th

You can use more paper if necessary, but please STAPLE

**Question 1.** If  $f(x) = x^3$ , simplify the expression.

$$\frac{f(a+h) - f(a)}{h}$$

**Question 2.** Find the domain of the function.

$$f(x) = \sqrt{8-x} - \sqrt{5+x}$$

**Question 3.** Draw a reasonable graph of the function. Label at least five points.

$$f(x) = \begin{cases} 3 - \frac{1}{2}x & \text{if } x \leq 2 \\ 2x - 5 & \text{if } x > 2 \end{cases}$$

**Question 4.** A rectangle has a perimeter of 20 meters. Express the area of the rectangle as a function of the length of one of its sides.