

**WRITE YOUR NAME:**

MAC 2311 Homework 1

Due in class, Friday January 20th

You can use more paper if necessary, but please STAPLE

**Question 1.** If  $f(x) = x^2$ , find and simplify each of the following.

- $f(7)$
- $f(-7)$
- $f(7.02)$
- $f(7 + h)$
- $f(7) + h$

**Question 2.** Expand and simplify each of the following.

- $(a - b)(a + b)$
- $(\sqrt{x + h} - \sqrt{x})(\sqrt{x + h} + \sqrt{x})$
- $\frac{\sqrt{x + h} - \sqrt{x}}{h} \cdot \frac{\sqrt{x + h} + \sqrt{x}}{\sqrt{x + h} + \sqrt{x}}$

**Question 3.** Evaluate the limit. (Hint: Do some algebra.)

$$\lim_{x \rightarrow 0} \frac{\sqrt{x+1} - 1}{x}$$