

**WRITE YOUR NAME:**

MAC 2311 Homework 4

Due in class, Friday October 20th

You can use more paper if necessary, but please STAPLE

**Question 1.** Find the derivative of the function, and simplify.

$$f(x) = \left(\frac{1}{x} + \frac{1}{x^2}\right)(3x^3 + 27)$$

**Question 2.** Find the derivative of the function, and simplify.

$$g(x) = \frac{x^2 - 1}{x^4 + 1}$$

**Question 3.** Find the derivative of the function, and simplify.

$$f(x) = \sec x \tan x$$

**Question 4.** Find the derivative of the function, and simplify.

$$f(x) = \frac{\sec x}{1 + \tan x}$$

**Question 5.** Find  $f'(x)$ .

$$f(x) = (3x^2 + 2x - 1)^6$$

**Question 6.** Find  $f'(x)$ .

$$f(x) = \sin\left(\frac{1}{x^2}\right)$$