

**WRITE YOUR NAME:**

MAC 2311 Homework 3  
Due in class, Friday February 17th  
You can use more paper if necessary, but please STAPLE

**Question 1.** For each function, find the horizontal asymptotes, if there are any.

$$f(x) = \frac{2x - 7}{x^2 - 4x}$$

$$g(x) = \frac{2x^2 - 6}{x^2 + 5x}$$

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

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

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

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