

Name \_\_\_\_\_  
Student I.D. \_\_\_\_\_

**Math 1210-1**  
**Quiz 4**  
**February 12, 2016**

Directions: You may ask and answer each others questions on this quiz. The goal is to understand what you're doing and express your thoughts clearly. Write your own solutions though, rather than just copying someone elses. Calculators are not allowed on this quiz. Show your work.

1) (3 points) Use the quotient rule to find  $D_x \frac{\sin(x)}{\cos(x)}$ . Simplify your answer to show that your computation reproduces the derivative shortcut for  $D_x \tan(x)$ .

2a) (2 points) Find  $f'(x)$  for  $f(x) = \sqrt{x^2 + 15}$ .

2b) (2 points) Find the equation of the line tangent to the graph of  $f(x) = \sqrt{x^2 + 15}$ , at the point on the graph with  $x = 1$ .

3) (3 points) Find  $D_t \frac{(3t^2 + 1)^{11}}{\cos(2t)}$ .