

**Math 124 Worksheet #6**  
**October 16, 2007**

1. Differentiate the following.

(a)  $y = \frac{1}{2}\sec x \tan x$

(b)  $f(\theta) = \frac{e^\theta}{\cos \theta} - \cot x$

2.  $f(\theta) = \sqrt{3}\cos \theta - \sin \theta$

(a) Find the roots/zeros of the function  $f$ .

(b) For what values of  $\theta$  does  $f$  have a horizontal tangent?

(c) What are the maximum and minimum values of the function? (Consider the graph of the function.)