

**232 Quiz 2**

September 9, 2011

**Name:** \_\_\_\_\_**Section:** \_\_\_\_\_**Name:** \_\_\_\_\_

*Work with your partner on each problem; do not split up problems or tasks. You must discuss each problem together and agree on a final solution. Hand in one quiz per group.*

*You may use your hand-written Notebooks but no other materials and no technology at all. Please keep your discussions quiet so as not to disturb or inform other groups.*

1. If a quantity quadruples every 12 years, what is its yearly percentage growth rate?  
Show all work clearly and in order.

2. Use implicit differentiation and the fact that  $\log_3 x$  is the inverse of  $3^x$  to prove that  $\frac{d}{dx}(\log_3 x) = \frac{1}{(\ln 3)x}$ . Make sure that all of your steps are clear.