

**235 Group Quiz 3**

September 23, 2010

**Name****Section**

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*Work in groups but do NOT split up problems or tasks. You must discuss each problem as a group and agree on a final answer. Hand in one quiz per group. You may use your class notebooks but no other materials or technology. Please keep your discussions quiet.*

1. Consider the limit statement  $\lim_{x \rightarrow 0} (3x^2 + 1) = 1$ .

a) Write this limit as a formal statement involving  $\delta$  and  $\epsilon$ , and sketch a labeled graph of  $f(x) = 3x^2 + 1$  that illustrates the roles of 0, 1,  $\delta$ , and  $\epsilon$ .

b) Write a careful, logically precise  $\delta$ - $\epsilon$  proof of the limit statement.