Introduction to Algebra, MATH 4127

Test 2, #5

Due Friday November 7, 2014 at 2:30

Write in complete sentences!!! *Explain* what you are doing and convince me that you understand what you are doing and why. **Justify all steps** by quoting the relevant results from the textbook.

Test 2, #5.

(a) Let N be a subgroup of group G. Let $g \in G$. Prove that coset gN equals N if and only if $g \in N$.

(b) If N is a normal subgroup of G and $|G/N| = m$, prove that $x^m \in N$ for all $x \in G$.