MATH 307

Group Homework 4

Instructions: Read textbook pages 37 to 38 and 43 to 45 before working on the homework problems. Show all steps to get full credits.

1. Textbook page 42, Chapter 4 problem 22.
2. Show that if V is a vector space with a real valued inner product $<,>$, then for any $x, y \in V, < x, y >= \frac{1}{4}(|x+y|^2 - |x-y|^2)$.
3. Suppose that V is a vector space with inner product $<,>$ and $u, v \in V, |u - v| = 3, |u + v| = 7$, find $< u, v >$ and $|u|^2 + |v|^2$.