Math 224 Quiz 2 Name: _____

January 23, 2004

Show all work for credit.

1. Find $\vec{a} \cdot \vec{b}$

   (a) $\vec{a} =< 4, -1 >$, $\vec{b} =< 3, 6 >$

   (b) $||\vec{a}|| = 12$, $||\vec{b}|| = 15$, the angle between $\vec{a}$ and $\vec{b}$ is $\pi/6$

2. Find the angle between the vectors:
   $\vec{a} =< 1, 2, 3 >$, $\vec{b} =< 4, 0, -1 >$

3. Find the vector projection of $\vec{b}$ onto $\vec{a}$:
   $\vec{a} =< 4, 2, 0 >$, $\vec{b} =< 1, 1, 1 >$

4. Prove that $\vec{a} \cdot \vec{b} = \vec{b} \cdot \vec{a}$