Dot Product

1. Compute ****

a. **u** = <2,3> and **v =** <0,5> b. **u** = <3,0> and **v =** <0,-2>

c. **u** = <-2,1> and **v** = <2,4> d. **u** = 2i – 5j and **v** = -4i + 10j

2. Which of the vectors in #1 are orthogonal? Which of them are parallel?

3. Find the angle between the vectors.

a. **u** = <3,4> and **v** = <1,2> b. **u** = <3,0> and **v** = <0,-2>

c. **u** = 3i + 5j and **v** = -2i – 4j d. **u =** -2i + 5j and **v = i** – 3j

4. Find proj**vu**, then write **u** as the sum of two vectors, one parallel to **v** and one orthogonal to **v**

a. **u** = <3,1> **v** = <1,2> b. **u** = <7,0> **v** = <6,4> c. **u** = <1,1> **v =** <-5,4>

5. A constant force **F =** <2,5> moves an object along the vector <-1,5>. Find the work done during this process.

6. Find the work done by the force **F =** -2i + 3j in moving an object from the point (1,4) to the point (3,-5)

7. A 36 N force acting at 36o moves a box 20 m horizontally. Find the work done.

8. A 50 N force acting at 260o moves an object 14 m at 215o. Find the work done.