Name: _____

Vectors and Dot Products

1) The vectors (8, k) and (9, 6) are perpendicular. Find k.

2) The vectors (8, 6) and (12, k) are parallel. Find k.

3) The position vectors of the points A, B and C with respect to the origin O are a = 8i – j, b = i + 4j and c = 4i – 3j respectively.

   1) Show that the triangle ABC is right-angled
   2) Find its area

4) Find $u \bullet v$ where $\|u\| = 9$, $\|v\| = 36$, and the angle θ between u and v is 135

5) Determine m if u=$\langle -3,2 \rangle$ and v =$\langle -12,m \rangle$ are orthogonal .

6) Find the angle between the vectors U and V, U= (2, 3) and V= (-3, 2)

7) Find the angle between the vectors U and V; U= 6**i** - **j** and V= **i** + 4**j**

8) Which of the following vectors are perpendicular to each other?
    U=8**i** + 6**j**, V=3**i** - 4**j**, W=4**i** + 3**j**

9) Determine the value of m if   M(0 ,m-1) such that triangle ABM is right at M where A(2,1)and B(-3,2).

10) Given: A(2m, 1); B(5, 0); and C(m-1, -m-2). Find m such that ∆ABC is right at B.