Homework #1

1 On a piece of graph paper, draw the following vectors:
A = 8**i**+15**j**+0**k**, and B= 4**i**+3**j**+0**k**. **(2 pts)**

2 Measure the length of each vector
|A| = **(1 pt)**
|B| = **(1 pt)**

3 Measure the angles between the two vectors
The angle between the vectors is (in degrees) **(1 pt)**
The angle between the vectors is (in radians) **(1 pt)**

4 Find the following dot products (and show your work on a separate page)
A•A = **(1 pt)**
B•B = **(1 pt)**
A•B = **(1 pt)**

5 Noting that $|\mathbf{V}| = \sqrt{\mathbf{V} \bullet \mathbf{V}}$, use your answers in (4) to find
|A| = **(1 pt)**
|B| = **(1 pt)**

6 Noting that A•B =|A|B| $\cos\theta_{AB}$, use your answers in (4) and (5) to solve for the angle θ_{AB}
θ_{AB} = **(2 pts)**

7 Solve for the vector **C = AxB**
C = **(3 pts)**

8 Using the "dot" function in Matlab, find the following dot products, **and include copies of the printouts.**
A•A = **(1 pt)**
B•B = **(1 pt)**
A•B = **(1 pt)**

9 Using the using the answers of (8) and the "sqrt" function in Matlab, find the following dot products, **and include copies of the printouts.**
|A| = **(1 pt)**
|B| = **(1 pt)**

10 Using your answers from (8) and (9), and the "acos" function in Matlab, solve for the angle θ_{AB}
θ_{AB} = **(2 pts)**

11 Using the "cross" function in Matlab, solve for the vector **C = AxB**
C = **(1 pt)**

24 pts