This quiz is due by 4pm on Thursday, January 29, 2015. To get credit for this quiz, you must turn in this sheet when you turn in the quiz.

You will be graded on both the correct answer and the correctness of the work that you provide to justify that answer. I expect to see all of your work in a neat and orderly manner. If you want, you may work the problems on other paper and turn in all your work.

1. Let \( \mathbf{a} = \langle 1, 2, 7 \rangle \) and \( \mathbf{b} = \langle 0, -4, 2 \rangle \).
   
   (a) Find \( \mathbf{b} \times \mathbf{a} \)

   (b) Find a unit vector that is orthogonal to vectors \( \mathbf{a} \) and \( \mathbf{b} \).

   (c) Find the area of the parallelogram determined by the vectors \( \mathbf{a} \) and \( \mathbf{b} \).

2. Are these vectors co-planer. Justify your answer.
   \[
   \mathbf{a} = 4i - 7j + k \\
   \mathbf{b} = -i + 4j + 2k \\
   \mathbf{c} = -i + 2j
   \]