Coordinate Systems

MATH 204: Linear Algebra
Prepare for class November 14, 2018 Name (Print): _____

After reading Section 4.4, work through the following ideas.

1. State Theorem 4.7: The Unique Representation Theorem.

2. Theorem 4.7 is an existence AND uniqueness theorem. The existence is pretty direct here. Recall to prove uniqueness we can assume there are two (in this case, sets of scalars with a certain property) and show they must be the same. Sketch the proof of this theorem (both existence and uniqueness). Make sure you BELIEVE the theorem!

3. State the definition of coordinates of $\vec{x}$ relative to the basis $\mathcal{B}$. Note that the vectors of the basis have an order when we define this! Why?

4. Try Exercise 1 in Section 4.4, page 224. (This is like Example 1 in the text.)

5. Try Exercise 5 in Section 4.4, page 224. (This is like Examples 2 and 4 in the text.)

6. Write down any questions you have on pages 218-220 of the reading.