

## Homework Set 1

DUE: SEP 9, 2019 (AT THE BEGINNING OF CLASS)

**To be handed in:***Please write your solution to Problems 1 and 2 on a single sheet of paper!*

1. Given the vectors  $\vec{v} = (1, 2, 3)$  and  $\vec{w} = (-1, 0, 1)$  in  $\mathbb{R}^3$ , compute the following:
  - a)  $\vec{v} + \vec{w}$
  - b)  $2\vec{v} - 3\vec{w}$
  - c)  $\langle \vec{v}, \vec{w} \rangle$
  - d)  $\langle \vec{v} + \vec{w}, \vec{v} - 2\vec{w} \rangle$
  
2. Find a **unit** vector  $\vec{u}$  which is orthogonal to both  $\vec{v}$  and  $\vec{w}$ .

NOT to be handed in (but recommended for you to practice with):

3. Textbook (5th edition) Section 11.1, Exercises 5-7, 25-28, 37-39, 84
4. Textbook (5th edition) Section 11.2, Exercises 25-27, 73-75
5. Textbook (5th edition) Section 11.3, Exercises 1-4, 59, 60
6. Textbook (5th edition) Section 11.4, Exercises 7-9