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Linear Algebra, Math 2101-002
Homework set #9

1. (a) What is the angle between the following two vectors in $\mathbb{R}^3$?

$$v_1 = \begin{vmatrix} -1 \\ 1 \\ 0 \end{vmatrix}, \; v_2 = \begin{vmatrix} 1 \\ 0 \\ 0 \end{vmatrix}.$$

(b) Find a vector (in $\mathbb{R}^3$) which is orthogonal to *both* v_1 and v_2.

2. What is the angle between the following two vectors in $\mathbb{R}^4$?

$$v_1 = \begin{vmatrix} 1 \\ 2 \\ -1 \\ 1 \end{vmatrix}, \; v_2 = \begin{vmatrix} 1 \\ -1 \\ -1 \\ 0 \end{vmatrix}.$$

3. Do exercise 5.4.9 from the book.