Math 2890 Homework 10   Due date: April 15

(1) Problem 11 in Sec 6.3.

(2) Problem 3 in Sec 6.4.

(3) (a) Find an orthogonal basis and an orthonormal basis for the
column space of the following matrix.

$$A = \begin{bmatrix} 3 & -5 & -2 & 1 \\ 1 & 1 & 2 & 1 \\ -1 & 5 & 4 & -2 \\ 3 & -7 & -4 & 8 \end{bmatrix}.$$

(b) Find the closest point to $y = \begin{bmatrix} 1 \\ -3 \\ 8 \\ 6 \end{bmatrix}$ in the subspace $Col(A)$.

(c) Find the distance between the point $y = \begin{bmatrix} 1 \\ -3 \\ 8 \\ 6 \end{bmatrix}$ and $Col(A)$

(4) Problem 1, 9 in Sec 6.5.