

Attendance Quiz for Dec. 2, 2010

NAME: (print!) _____ **Section:** _____

E-MAIL ADDRESS: (print!) _____

1. (a) Apply the Gram-Schmidt process to replace the given linearly independent set \mathcal{S} by an orthogonal set of non-zero vectors with the same span.

$$\mathcal{S} = \left\{ \begin{bmatrix} 1 \\ -2 \\ 1 \end{bmatrix}, \begin{bmatrix} 1 \\ -1 \\ 0 \end{bmatrix} \right\}$$

- (b) Obtain an orthonormal set with the same span as \mathcal{S} .

2. (a) Let A be the matrix whose columns are the vectors in \mathcal{S} in the above problem. Use the answer to that problem to determine the matrices Q and R in a QR factorization of A .

- (b) Verify that indeed $A = QR$.