Math 221
Class Exercises: Apr. 4

1. Fill in the second row of the matrix A so that it has eigenvalues 1, and 5.

$$A = \begin{bmatrix} 0 & 1 \\ * & * \end{bmatrix}$$

2. Suppose $B = QDQ^{-1}$ where

$$Q = \left[\begin{array}{c|c|c} u & v & w \end{array}\right] \qquad D = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 3 & 0 \\ 0 & 0 & 5 \end{bmatrix}$$

   (a) Give a basis for $\mathcal{N}(A)$.

   (b) Find all solutions of $Ax = v + w$.