

Math 2321: Recitation #2

January 17, 2014

1. Let $A = \begin{bmatrix} 0 & 4 \\ -1 & 5 \end{bmatrix}$.

- (a) Find the eigenvalues of A .
- (b) For each eigenvalue of A , give one example of a corresponding eigenvector, and find a basis for the eigenspace.

2. Let $B = \begin{bmatrix} 3 & 5 \\ -1 & -1 \end{bmatrix}$.

Find the eigenvalues and associated eigenspaces of B over the following scalar fields:

- (a) \mathbb{R}
- (b) \mathbb{C}
- (c) \mathbb{Z}_5 .

3. Let J be the 5×5 matrix whose entries are all ones.

- (a) Find two distinct eigenvalues of J by inspection.
- (b) Find bases for the eigenspaces associated with your answers to (a).