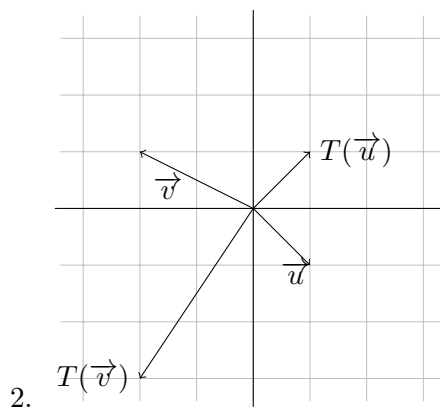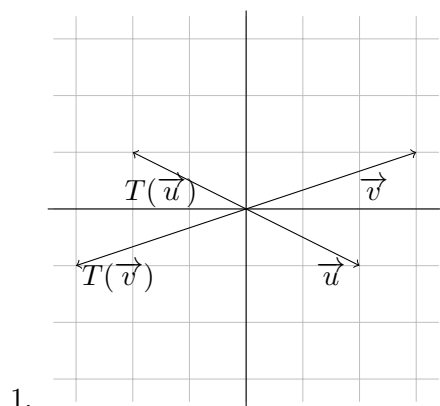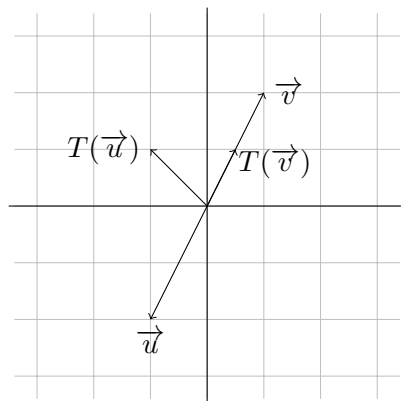# Eigenvalues and Eigenvectors

Due March 23
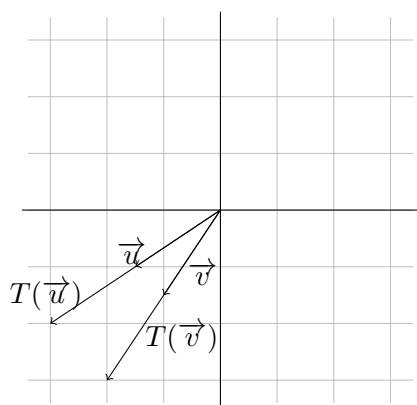
March 11, 2011

Which, if any, of the vectors in the following pictures are eigenvectors? What are the corresponding eigenvalues?

1.

2.

3.

4.

Use the applet at

math.mit.edu/daimp/MatrixVector.html

to find the eigenvalues and eigenvectors of the following 2×2 matrices. (Use the applet. Do not use the usual computations.)

1. $\begin{bmatrix} 1 & 0 \\ 0 & -2 \end{bmatrix}$

2. $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$

3. $\begin{bmatrix} 1 & 0 \\ 3 & 1 \end{bmatrix}$

4. $\begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix}$