# MATH 134A Review: Eigenvalues and Eigenvectors

1. Find one eigenvalue for the following matrix.

$$A = \begin{pmatrix} 1 & 3 \\ 2 & 2 \end{pmatrix}$$

**Solution:** $\lambda = -1$ or $\lambda = 4$.

2. This problem again uses the $A$ matrix from the previous exercise. Let $\lambda$ be the eigenvalue you found from the previous exercise. Find a basis for the corresponding eigenspace.

**Solution:** If you found $\lambda = -1$, then a basis would be

$$\begin{pmatrix} -\frac{1}{2} \\ \frac{1}{3} \end{pmatrix}$$

or any scalar multiple of it. If you found $\lambda = 4$, then a basis would be

$$\begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

or any scalar multiple of it.