Chapter 6.1

Linear Algebra with applications to differential equations

College of the Atlantic. Winter 2019

1. (Re)introduce yourself to your partners and briefly talk about sports you like to participate in.

2. Find the eigenvalues and eigenvectors for the matrix A:

$$A = \begin{bmatrix} 5 & -2 \\ 3 & -2 \end{bmatrix} . \tag{1}$$

3. Find the eigenvalues and eigenvectors for the matrix A:

$$A = \begin{bmatrix} 0 & 8 \\ -2 & 0 \end{bmatrix} . \tag{2}$$

4. Find the eigenvalues and eigenvectors for the matrix A:

$$A = \begin{bmatrix} 2 & 3 \\ 0 & 2 \end{bmatrix} . \tag{3}$$

5. Find the eigenvalues and eigenvectors for the matrix A:

$$A = \begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix} . \tag{4}$$

6. Find the eigenvalues and eigenvectors for the matrix A:

$$A = \begin{bmatrix} 4 & -2 & 1 \\ 2 & 0 & 1 \\ 2 & -2 & 3 \end{bmatrix} . \tag{5}$$

The characteristic equation for A can be factored:

$$\lambda^3 - 7\lambda^2 + 16\lambda - 12 = (\lambda - 2)^2(\lambda - 3) . \tag{6}$$