

## Chapter 3.5

### Linear Algebra with applications to differential equations

College of the Atlantic. Winter 2019

1. (Re)introduce yourself to your partners and briefly share something exciting (or noteworthily boring) from your weekend.
2. Consider the system

$$\begin{aligned}2x_1 - 4x_2 &= 20 \\4x_1 + 4x_2 &= 32\end{aligned}\tag{1}$$

- (a) Write this system as  $A\vec{x} = \vec{b}$ .
- (b) Find  $A^{-1}$  using the formula.
- (c) Find  $A^{-1}$  using row reduction.
- (d) Use  $A^{-1}$  to quickly find the solution to  $A\vec{x} = \vec{b}$ .

.....

3. Find the determinant of each of the following matrices:

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 5 & 7 & 9 \end{bmatrix}, \quad A = \begin{bmatrix} 4 & 62 & \pi \\ 0 & 9 & 17.44 \\ 0 & 0 & -1 \end{bmatrix}.\tag{2}$$