

# Week 1 Day 1

## **Announcement: SI Sessions**

## Inner Animal

Make sure you know your neighbors' names, and then take about 2 minutes to discuss:

If you could wake up tomorrow and be any (non-human) animal, what animal would you choose to be and why?

# Row Reduction

1. How many pivots does the following matrix have?

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

(A) 0

(B) 1

(C) 2

(D) 3

2. (A) True or (B) False? Any linear system with 2 equations and 3 variables must have infinitely many solutions.

3. Your friend Samantha writes down a  $3 \times 4$  matrix (ie, a matrix with 3 rows and 4 columns), but she doesn't show it to you. Which of the following statements can you assert with complete confidence?

- (A) Samantha's matrix cannot have 0 pivots.
- (B) Samantha's matrix cannot have 3 pivots.
- (C) Samantha's matrix cannot have 4 pivots.
- (D) None of the above OR more than one of the above.

4. How many solutions does the linear system corresponding to the following augmented matrix have?

$$\left[ \begin{array}{ccc|c} 1 & 1 & 1 & 1 \\ 1 & 1 & 0 & 0 \\ 1 & 0 & 1 & 2 \end{array} \right]$$

- (A) None
- (B) Exactly One
- (C) Infinitely Many