

Math 33A — Week 1

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Name: _____

1. Consider the system

$$\begin{aligned}2x - y &= 7 \\ -x + \frac{1}{2}y &= 10\end{aligned}$$

- (a) Solve the system using elimination or substitution.
- (b) How many solutions does this system have?
- (c) Solve using Gaussian or Gauss-Jordan elimination and show you have the same result as part (a).

2. Consider the system

$$\begin{aligned}x + 2y &= 13 \\ 4x + 8y &= 52\end{aligned}$$

- (a) Solve the system using elimination or substitution.
- (b) How many solutions does this system have?
- (c) Solve using Gaussian or Gauss-Jordan elimination and show you have the same result as part (a).

3. Consider the system

$$\begin{aligned}x + 3y &= 21 \\5x - y &= -7\end{aligned}$$

- (a) Solve the system using elimination or substitution.

- (b) How many solutions does this system have?
- (c) Solve using Gaussian or Gauss-Jordan elimination and show you have the same result as part (a).

- 4. (a) Is it possible for a system of equations to have exactly two solutions?
- (b) How many solutions can a linear system have? (*Hint*: Three possibilities)

- (c) Using Gaussian or Gauss-Jordan elimination, how do you know when you have no solution?

- (d) Using Gaussian or Gauss-Jordan elimination, how do you know when you have infinitely many solutions?