

M 327J - Differential Equations with Linear Algebra

October 3, 2022

Quiz 4

1. [5 points] Use Gaussian elimination to solve the following system of equations.

$$-x_1 + 4x_2 - 8x_3 = 11$$

$$2x_2 - 4x_3 = 8$$

$$x_1 - x_2 + 2x_3 = 1$$

Express your answer as a set.

2. [5 points] Which of the following is **not** a vector space? Why?

- a) The set of all differentiable functions satisfying $f'(4) = -4f(2)$.
- b) The set of all differentiable functions satisfying $f(0) = 1$.
- c) The set of all differentiable functions satisfying

$$\lim_{t \rightarrow \infty} f'(t) = 0.$$

You **do not** have to show the other two sets are vector spaces.