

MTH 309 - Activity 14
Inconsistent Systems

1. Let $A = \begin{bmatrix} 1 & 4 \\ -2 & -8 \end{bmatrix}$.

(a) For what vectors b does the system $Ax = b$ have a solution? Is this set a subspace?

(b) Which of those vectors is closest to $\tilde{b} = \begin{bmatrix} -2 \\ 3 \end{bmatrix}$?

(c) For the vector you found in the previous part, solve $Ax = b$. What can you say about how the solution relates to the system $Ax = \tilde{b}$?

2. Consider the following inconsistent system (no solutions).

$$3x + 2y - 2z = 1$$

$$x - y + 2z = 4$$

$$x + 4y - 6z = -8$$

Repeat the steps for the previous problem using this system for the A and \tilde{b} .