

Name:

1. Let $S = \{(x, y, z) \in \mathbb{R}^3 \mid x + y + z \in \mathbb{Z}\}$.

(a) Is S closed under addition?

(b) Is S closed under scalar multiplication?

(c) Is S a subspace of \mathbb{R}^3 ?

2. Find a basis for, and the dimension of, $NS(A)$.

$$A = \begin{pmatrix} 1 & 3 & 0 & 5 \\ -1 & 0 & 2 & 1 \\ -1 & 3 & 4 & 7 \end{pmatrix}$$