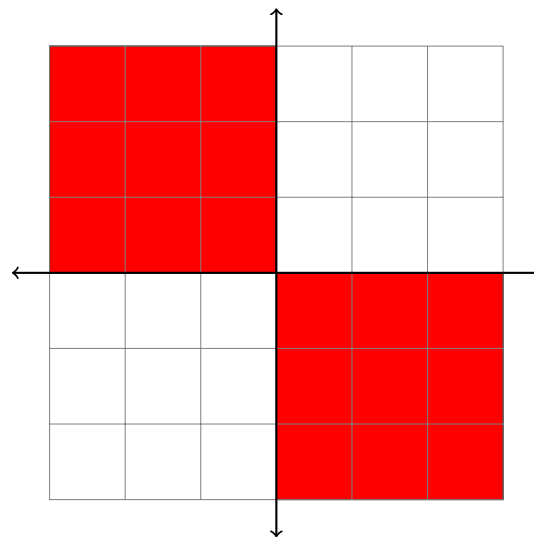
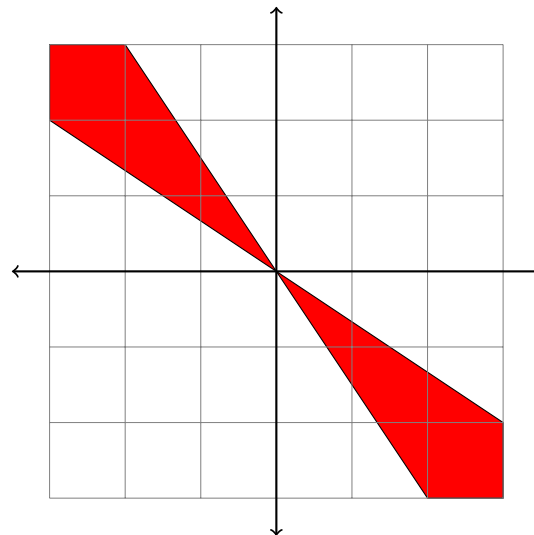
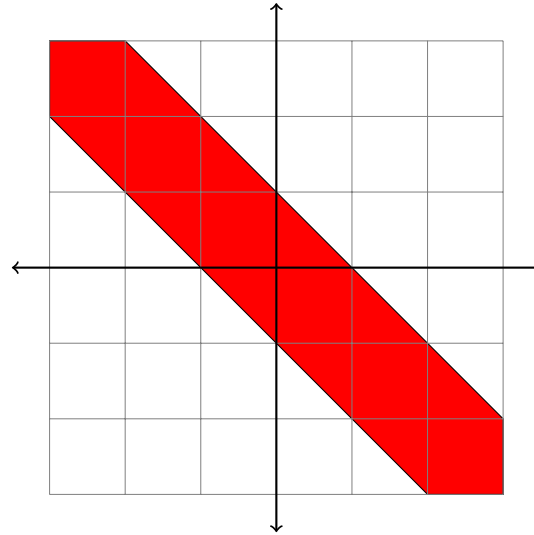


Assignment 6

1. Can a square matrix with two identical columns be invertible? Why or why not?
2. If A is invertible, then the columns of A^{-1} are linearly independent. Explain why.
3. Show that if AB is invertible then so is B .
4. If $T \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \begin{bmatrix} x_2 \\ x_1 - x_2 \\ 2x_2 + x_3 \end{bmatrix}$ find T^{-1} .
5. The following regions are **not** subspaces of \mathbb{R}^2 . For each example give pairs of vectors or a pair of a vector and a real number that demonstrates this.





6. (a) Is $\begin{bmatrix} -4 \\ 6 \end{bmatrix}$ and $\begin{bmatrix} 2 \\ -3 \end{bmatrix}$ a basis for \mathbb{R}^2 ?

(b) Is $\begin{bmatrix} 1 \\ 1 \\ -2 \end{bmatrix}$, $\begin{bmatrix} 7 \\ 0 \\ -5 \end{bmatrix}$ and $\begin{bmatrix} -5 \\ -1 \\ 2 \end{bmatrix}$ a basis for \mathbb{R}^3 ?