

Name:

1. Consider the matrix

$$A = \begin{bmatrix} 1 & 0 & -3 & 2 \\ 2 & 1 & 4 & 7 \\ 1 & 2 & 17 & 8 \end{bmatrix}.$$

(a) Find a basis for the row space  $RS(A)$ .

(b) What is the rank of  $A$ ?

(c) What is the dimension of the null space  $NS(A)$ ?

2. Suppose that  $B$  is a matrix such that

$$NS(B) = \text{Span} \left\{ \begin{bmatrix} 2 \\ 0 \\ 1 \\ -1 \end{bmatrix}, \begin{bmatrix} -1 \\ 3 \\ 0 \\ 1 \end{bmatrix} \right\}.$$

If the rows of  $B$  are linearly independent, how many rows are there? Explain.