

Name: _____

Directions: Show all work. No credit for answers without work.

1. Let $A = \begin{bmatrix} 1 & 4 \\ -7 & 3 \end{bmatrix}$ and let $B = \begin{bmatrix} 0 & -2 \\ 5 & 3 \end{bmatrix}$.

(a) [4 points] Find $2A - B$.

(b) [1 point] Is $2A - B$ a linear combination of A and B ? Justify your answer.

(c) [1 point] Is $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$ a linear combination of A and B ? Justify your answer.

2. [4 points] Let $A = \begin{bmatrix} 3 & -1 \\ 1 & 2 \end{bmatrix}$ and let $B = \begin{bmatrix} 5 & -2 \\ 1 & 0 \\ 2 & -1 \end{bmatrix}$.

(a) If possible, find AB .

(b) If possible, find BA .