

Group: _____ Present: _____

1. Compute (if possible):

$$(a) \begin{pmatrix} 3 & 2 & -1 \\ 4 & 0 & 1 \end{pmatrix} + 2 \begin{pmatrix} 6 & 0 & -1 \\ 7 & -3 & 2 \end{pmatrix} = \begin{pmatrix} & & \\ & & \end{pmatrix}$$

$$(b) \begin{pmatrix} 6 & 0 \\ 2 & -1 \end{pmatrix} + \begin{pmatrix} 2 \\ -1 \end{pmatrix} =$$

$$(c) 3 \begin{pmatrix} 2 & 3 \\ -1 & 4 \end{pmatrix} - \begin{pmatrix} 7 & 2 \\ 6 & 1 \end{pmatrix} =$$

2. Explain why the following matrices are or are not linearly dependent

$$(a) A_1 = \begin{pmatrix} -1 & 2 \\ 3 & -2 \end{pmatrix}, A_2 = \begin{pmatrix} 2 & 0 \\ 2 & -4 \end{pmatrix}, A_3 = \begin{pmatrix} 5 & 0 \\ 0 & 1 \end{pmatrix}, A_4 = \begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix}$$

$$(b) B_1 = \begin{pmatrix} -1 & 0 \\ 3 & 2 \end{pmatrix}, B_2 = \begin{pmatrix} -1 & 0 \\ 1 & 0 \end{pmatrix}, B_3 = \begin{pmatrix} 0 & -1 \\ 1 & 1 \end{pmatrix}, B_4 = \begin{pmatrix} 0 & 1 \\ 0 & 0 \end{pmatrix}$$

3. Is the 2×2 zero matrix $\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$ dependent on the matrix $C = \begin{pmatrix} -1 & 2 \\ 3 & -2 \end{pmatrix}$? Explain!