

PRINT Your Name: _____

There are 9 problems on 4 pages. Problem 3 is worth 20 points. Each of the other problems is worth 10 points. SHOW your work. **CIRCLE** your answer. **CHECK** your answer whenever possible. No Calculators.

1. Find the inverse of

$$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}.$$

The inverse is

$$-\frac{1}{2} \begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$$

$$\begin{bmatrix} -2 & 1 \\ \frac{3}{2} & -\frac{1}{2} \end{bmatrix}$$

2. Define "null space". Use complete sentences.

The null space of the matrix A is the set of all column vectors x with $Ax=0$.