

Place your name on the back of this sheet of paper and nowhere else. Staple your answers face up on the front of this sheet of paper. Failure to follow these directions will cost you 1 point. If you use double-sided printing or print on the back of scrap paper, I will give you one additional point.

**Show all work.**

1) (15 points each) Find the determinant of the matrix, the inverse of the matrix, and multiply the matrix by its inverse to prove that your inverse is correct. If there is no inverse, explain why there is no inverse.

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

$$B = \begin{bmatrix} 2 & -1 \\ 1 & 4 \end{bmatrix}$$

$$C = \begin{bmatrix} 1/2 & 3/4 \\ 3/2 & 5/4 \end{bmatrix}$$

$$D = \begin{bmatrix} 5 & -3 \\ -10 & 4 \end{bmatrix}$$

$$E = \begin{bmatrix} -3 & -2 \\ -1 & -5 \end{bmatrix}$$

$$F = \begin{bmatrix} 2 & 3 \\ -10 & -15 \end{bmatrix}$$

2) (10 points) What is the determinant of a matrix which has linearly dependent rows? Why do you say that?