Name: _____

1. (5 points) Find the determinant of the matrix

$$A = \begin{pmatrix} 0 & 2 & 3 & 4 \\ 0 & 0 & 0 & 4 \\ 1 & 2 & 3 & 4 \\ 0 & 0 & 3 & 4 \end{pmatrix}$$

using any method.

2. (4 points) Let
$$A = \begin{pmatrix} k & 2 \\ 3 & 4 \end{pmatrix}.$$
Use the determinant to calculate the values of k for which the matrix A is invertible.

3. (2 points) True or false. Indicate whether the following statements are true or false.

(a) If all entries of a 9×9 matrix A are 9, then $\det(A) = 9^9$.

(b) If A and B are two $n \times n$ matrices, then $\det(AB) = \det(BA)$.