MATH2210Q - Quiz #2 **Name:**

For full credit, you must show all work and circle your final answer.

1 Find the inverses of the following matrices.

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

(b) $A = \begin{bmatrix} 1 & 2 & 1 \\ 0 & 2 & 1 \\ 0 & 0 & 1 \end{bmatrix}$

2 Calculate the determinants for the following matrices.

(a) $A = \begin{bmatrix} 1 & 0 & -1 & 4 & -1 \\ 3 & 0 & 8 & 3 & 0 \\ 1 & 0 & 2 & -2 & -2 \\ 0 & 0 & 3 & 8 & 1 \\ 6 & 0 & 5 & 3 & -1 \end{bmatrix}$

(b) $B = \begin{bmatrix} 1 & 2 & 2 & 5 \\ 0 & 5 & -8 & 5 \\ 0 & 0 & 2 & 5 \\ 0 & 0 & 0 & 3 \end{bmatrix}$

3 Find a basis for the null space of the matrix.

$$A = \begin{bmatrix} -3 & 6 & -1 & 1 & -7 \\ 1 & -2 & 2 & 3 & -1 \\ 2 & -4 & 5 & 8 & -4 \end{bmatrix}$$

given that

$$[A \mid 0] = \begin{bmatrix} -3 & 6 & -1 & 1 & -7 & 0 \\ 1 & -2 & 2 & 3 & -1 & 0 \\ 2 & -4 & 5 & 8 & -4 & 0 \end{bmatrix} \sim \begin{bmatrix} 1 & -2 & 0 & -1 & 3 & 0 \\ 0 & 0 & 1 & 2 & -2 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}.$$