CS691 Quiz 1 Name _____

1. Why must the identity matrix be square? (2 points)

2. Show that B is the inverse of A. (3 points)

$$A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

$$B = \frac{1}{ad - bc} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$$

3. Find the gradient of f. Show your work. (3 points)

$$f(x, y, z, q) = xyz^3q + x^2z + 2q^4 + y + 2$$

4. I want a model that can predict whether or not an image contains a duck. Is this a classification or regression problem? Why? (2 points)

CS491 Quiz 1 Name _____

1. Find the inverse of A. (3 points)

$$A = \begin{bmatrix} 5 & 0 & 1 \\ 0 & 6 & 1 \\ 0 & 0 & 3 \end{bmatrix}$$

2. Why is the L1 norm referred to as the "taxicab" distance? (2 points)

3. Show that the following two vectors are not perpendicular. (2 points)

$$\begin{bmatrix} 5 \\ 1 \\ 3 \end{bmatrix} \begin{bmatrix} 1 \\ -4 \\ 2 \end{bmatrix}$$

4. Find the gradient of f. Show your work. (3 points)

$$f(x, y, z, q) = xyz^3q + x^2z + 2q^4 + y + 2$$