Quiz 9

Multiple Choice

1 point possible (graded)

What is the length of $\vec{u}$ such that $\vec{u} = \frac{\vec{v}}{\|\vec{v}\|}, \vec{v} = (2, 3, 7)$?

- 1
- 3.61
- 7.84
- 62

Submit

True or False

1 point possible (graded)

If every vector in an orthonormal basis is orthogonal to each other, this implies that there can be one and only one vector for each dimension of the vector space in this set.

- True

- False

Submit

True or False

1 point possible (graded)

An inner produce, such as the dot product, always uses two vectors as operands and produces a scalar number as the result.

- True
- False

Submit

Multiple Choice

1 point possible (graded)

Given a matrix, $A = \begin{bmatrix} 4 & 1 \\ 1 & 9 \end{bmatrix}$, find $(4A)^{-1}$.

- $(4A)^{-1} = \begin{bmatrix} 1 & -\frac{1}{9} \\ -\frac{1}{9} & \frac{4}{9} \end{bmatrix}$
- $(4A)^{-1} = \begin{bmatrix} \frac{9}{140} & -\frac{1}{140} \\ -\frac{1}{140} & \frac{1}{35} \end{bmatrix}$

- $(4A)^{-1} = \begin{bmatrix} \frac{1}{16} & \frac{1}{4} \\ \frac{1}{4} & \frac{1}{36} \end{bmatrix}$
- $(4A)^{-1} = \begin{bmatrix} \frac{1}{36} & -\frac{1}{4} \\ -\frac{1}{4} & \frac{1}{16} \end{bmatrix}$

Submit

True or False

1 point possible (graded)

A mxn matrix can be added with a nxm matrix, but they cannot be multiplied. (Assume $m \neq n$)

- True
- False

Submit

Multiple Choice

5 points possible (graded)

Given the matrix A below, answer the following questions:

$$A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$$

a) $4A + 4A = ?$

- $4A$
- $8A$
- $16A$
- Cannot add two matrices of the same dimension

b) $A - 2 = \begin{bmatrix} a_{11} - 2 & a_{12} - 2 \\ a_{21} - 2 & a_{22} - 2 \end{bmatrix}$

- True
- False

c) $A^{-1} = \frac{1}{A}$

- True
- False

d) $(A^T)I = ?$

- A

- A^T
- 1
- A^{-1}

e) $(A^T)^T = A$

- True
- False

Submit

Checkboxes

1 point possible (graded)

If $A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$ and $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ is an identity matrix, which of the following statements are true?

- $AI = A$
- $IA = A$
- $I + A = A$
- $AI^T = A$

Submit

True or False

1 point possible (graded)

When a system has more dimensions than points, it is called an “overdetermined system”.

- True
- False

Submit

True or False

1 point possible (graded)

The purpose of linear regression is to find a line that most closely matches a set of data with multiple data points.

- True
- False

Submit