

Welcome

Introduction

Review

Model and Cost Function

Parameter Learning

Review

Linear Algebra Review

Review

✔ Reading: Lecture Slides

10 min

✔ Practice Quiz: Linear Algebra

5 questions

✔ Congratulations! You passed!

Grade received 80% To pass 80% or higher

Practice Quiz • 30 min

Go to next item

✔ Submit your assignment

Linear Algebra

Try again

Total points 5

✔ Receive grade

1. Let two matrices A and B be 80% or higher

$$A = \begin{bmatrix} 1 & -4 \\ -2 & 1 \end{bmatrix}, \quad B = \begin{bmatrix} 0 & 3 \\ 5 & 8 \end{bmatrix}$$

What is $A + B$?

✔ Like

🗨 Dislike

🚩 Report an issue

☐ $\begin{bmatrix} 1 & 1 \\ -3 & -7 \end{bmatrix}$

☒ $\begin{bmatrix} 1 & -7 \\ -7 & -7 \end{bmatrix}$

☐ $\begin{bmatrix} 1 & 7 \\ 7 & 9 \end{bmatrix}$

☐ $\begin{bmatrix} 1 & -7 \\ -7 & 7 \end{bmatrix}$

✔ Correct

2. Let $x = \begin{bmatrix} 2 \\ 7 \\ 4 \\ 1 \end{bmatrix}$

What is $3 * x$?

☐ $\begin{bmatrix} 6 & 21 & 12 & 3 \end{bmatrix}$

☐ $\begin{bmatrix} \frac{2}{3} & \frac{7}{3} & \frac{4}{3} & \frac{1}{3} \end{bmatrix}$

☒ $\begin{bmatrix} 6 \\ 21 \\ 12 \\ 3 \end{bmatrix}$

☐ $\begin{bmatrix} \frac{2}{3} & \frac{7}{3} & \frac{4}{3} & \frac{1}{3} \end{bmatrix}$

✔ Correct

To multiply the vector x by 3, take each element of x and multiply that element by 3.

1 / 1 point

3. Let u be a 3-dimensional vector, where specifically

$$u = \begin{bmatrix} 8 \\ 1 \\ 4 \end{bmatrix}$$

What is u^T ?

☐ $\begin{bmatrix} 4 \\ 1 \\ 8 \end{bmatrix}$

☐ $\begin{bmatrix} 8 \\ 1 \\ 4 \end{bmatrix}$

☒ $\begin{bmatrix} 8 & 1 & 4 \end{bmatrix}$

☐ $\begin{bmatrix} 4 & 1 & 8 \end{bmatrix}$

✔ Correct

1 / 1 point

4. Let u and v be 3-dimensional vectors, where specifically

$$u = \begin{bmatrix} 3 \\ -5 \\ 4 \end{bmatrix}$$

and

$$v = \begin{bmatrix} 1 \\ 2 \\ 5 \end{bmatrix}$$

What is $u^T v$?

(Hint: u^T is a

1x3 dimensional matrix, and v can also be seen as a 3x1

matrix. The answer you want can be obtained by taking

the matrix product of u^T and v .) Do not add brackets to your answer.

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✔ Correct

1 / 1 point

5. Let A and B be 3x3 (square) matrices. Which of the following must necessarily hold true? Check all that apply.

☐ $A * B = B * A$

☐ If $C = A * B$, then C is a 6x6 matrix.

☒ If A is the 3x3 identity matrix, then $A * B = B * A$

✔ Correct

Even though matrix multiplication is not commutative in general ($A * B \neq B * A$ for general matrices A, B), for the special case where $A = I$, we have $A * B = I * B = B$, and also $B * A = B * I = B$. So, $A * B = B * A$.

☐ $A + B = B + A$

You didn't select all the correct answers

0 / 1 point