0/5 Questions Answered

quiz 3

Student Name

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Q1
6 Points

Answer the following questions. If there are multiple correct answers, select all that apply.

Q1.1
2 Points

What does the following matrix do when we multiply it on the right of a 5×3 matrix: $\begin{bmatrix} 0 \\ 2 \\ 0 \end{bmatrix}$?

- extract the second row
- extract the second column
- extract the second row and multiply by 2
- extract the second column and multiply by 2
- none of the above

Save Answer

Q1.2
2 Points

What does the following matrix do when we multiply it on the left of a 2×4 matrix: $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$?

- swap the first and second rows
- make two copies of the first row
- extract the second row and multiply by 2
- extract the second column and multiply by 2
- none of the above

Save Answer

Q1.3
2 Points

Which of the following swaps the first and third columns, then doubles the second column when multiplied on the right of a 5×3 matrix:

$$\begin{bmatrix}1&0&0\\0&2&0\\0&0&1\end{bmatrix} \begin{bmatrix}0&0&1\\0&1&0\\1&0&0\end{bmatrix}$$

$$\begin{bmatrix}0&0&1\\0&1&0\\1&0&0\end{bmatrix} \begin{bmatrix}1&0&0\\0&2&0\\0&0&1\end{bmatrix}$$

$$\begin{bmatrix}0&0&1\\0&1&0\\1&0&0\end{bmatrix} \begin{bmatrix}0&0&0\\1&2&1\\0&0&0\end{bmatrix}$$

$$\begin{bmatrix}0&0&0\\1&2&1\\0&0&0\end{bmatrix} \begin{bmatrix}0&0&1\\0&1&0\\1&0&0\end{bmatrix}$$

$$\begin{bmatrix}0&0&1\\0&2&0\\1&0&0\end{bmatrix}$$

$$\begin{bmatrix}1&0&0\\0&2&0\\0&0&1\end{bmatrix}$$

none of the above

Save Answer

Q2
9 Points

Suppose $\mathbf{A} = \begin{bmatrix}a&-1&0\\a&-1&0\\a&1&-c\\a&1&c\end{bmatrix}$, where $a, c > 0$ are numbers.

Q2.1
4 Points

Define $\mathbf{D} = \mathbf{A}^T\mathbf{A}$. What are the diagonal elements of $\mathbf{D}$?

(1,1) entry of D

Enter your answer here

(2,2) entry of D

Enter your answer here

(3,3) entry of D

Enter your answer here

Save Answer

Q2.2
5 Points

Suppose $\mathbf{b} = \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}$. What is the solution $\mathbf{x}$ to the linear system $\mathbf{Dx} = \mathbf{b}$? Hint: think about what the rest of the elements of $\mathbf{D}$ are.

Enter your answer here

Save Answer

Save All Answers

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