Quiz 7

⚠ This is a preview of the published version of the quiz

Started: Oct 26 at 3:13pm

Quiz Instructions

Once you open this quiz, you will have 25 minutes to submit it. You will have only **one** submission attempt. The quiz must be **submitted** by 7:59 PM (Atlanta time) on Friday, Oct 23. There are 5 questions after the honor code pledge.

Question 1	0 pts

Please read and attest to the honor statement below:

I understand that this assessment is open-book and open-note, but not open-internet. I may use my class notes, my instructor's notes, and the ILA textbook at **https://textbooks.math.gatech.edu/ila/ila.pdf (https://textbooks.math.gatech.edu/ila/ila.pdf)** .

However, I will not visit any other websites, use any search engines, or use any calculators or computer aids whatsoever (Matlab, Mathematica, Chegg.com, Geogebra, etc.) as I take this assessment.

This assessment is completely my own work. I will not discuss the answers or any of the contents of this assessment with anyone until the time it is due.

○ I attest to my integrity, and I understand that any suspected violation of this policy may be prosecuted to the fullest extent allowable by Georgia Tech.

Question 2	1 pts

Suppose that a, b, c, and d are real numbers and that

$$\det \begin{pmatrix} a & b \\ c & d \end{pmatrix} = 1.$$

Compute the determinant of

$$\begin{pmatrix} 5a - 7c & 5b - 7d \\ a & b \end{pmatrix}.$$

Question 3   1 pts

Find the value of h that makes the following matrix not invertible:

$$\begin{pmatrix} 0 & 6 & 6 \\ -1 & 7 & 2 \\ -2 & 6 & h \end{pmatrix}.$$

Question 4   1 pts

Determine whether each of the two statements is true or false.

(a) For any two 2×2 matrices A and B we have $\det(A + B) = \det(A) + \det(B)$.

[Select]

(b) For any 2×2 matrix A we have $\det(-A) = \det(A)$.

[Select]

Question 5   1 pts

Find the value of h that makes the following statement true.

$$\det \begin{pmatrix} h-5 & -7 & 1 \\ 0 & 4 & 2 \\ 0 & 0 & 3 \end{pmatrix} = 48 \, .$$

Question 6   1 pts

Let S be the square in $\mathbb{R}^2$ whose corners are $(0,0)$, $(1,0)$, $(1,1)$, and $(0,1)$. For each matrix below consider the corresponding matrix transformation $T : \mathbb{R}^2 \to \mathbb{R}^2$. For which matrices does $T(S)$ have area 2? *Select all that apply.*

☐ $\begin{pmatrix} 2 & 1 \\ 1 & 2 \end{pmatrix}$

☐ $\begin{pmatrix} -1 & 1 \\ 1 & 1 \end{pmatrix}$

☐ $\begin{pmatrix} 2 & 0 \\ 0 & 2 \end{pmatrix}$

☐ $\begin{pmatrix} 2 & 0 \\ 0 & 0 \end{pmatrix}$

☐ $\begin{pmatrix} 3 & 7 \\ 1 & 3 \end{pmatrix}$

☐ $\begin{pmatrix} \sqrt{2} & 0 \\ 0 & 1 \end{pmatrix}$

Not saved

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