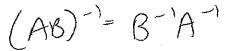
## Math 1553, Quiz 6 (3.5-3.6, Ch. 4), Fall '25, Version A

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Name		Cey		GT ID	

Write your studio section below. It is a letter followed by a number (for example, A1).



- The quiz is worth 3 points. Only answers are graded, and there is no partial credit.
- For questions with bubbles, either fill in the bubble completely or leave it blank. Do not mark any bubble with "X" or "/" or any such intermediate marking. Anything other than a blank or filled bubble may result in a 0 on the problem, and regrade requests may be rejected without consideration.
- 1. (0.5 points each) True or false. If the statement is ever false, fill in the bubble for False.
  - (a) If A and B are invertible  $n \times n$  matrices, then  $(AB)^{-1} = A^{-1}B^{-1}$ .
    - True
    - False



- (b) If A is a  $3 \times 3$  matrix whose first column is the sum of its second and third columns, then det(A) = 0. not invertible
  - 7 True
  - O False

- So let (A) = 0.
- 2. (0.25 points each) Suppose A is an  $n \times n$  matrix. Which of the following statements must be true? Fill in the bubble for all that apply.
  - $\bigcirc$  If  $\det(A) = 2$ , then  $\det(3A) = 6$ .
  - If there is a vector b in  $\mathbb{R}^n$  so that Ax = b has exactly one solution, then A must be invertible. This implies Ax = b has exactly one solution, then A must be invertible.

    Solution by the theory of A and A must also be invertible.
  - **@** If A is invertible, then  $A^3$  must also be invertible.

(Problem 3 is on the back side)

- 3. (1 point) Suppose  $\det \begin{pmatrix} a & b & c \\ d & e & f \\ g & h & i \end{pmatrix} = 1.$ 
  - Find  $\det \begin{pmatrix} 5a+2d & 5b+2e & 5c+2f \\ a & b & c \\ a & h & i \end{pmatrix}$ . Fill in the bubble for your answer below.

- $\bigcirc$  1/2
- $\bigcirc -1/2$
- $\bigcirc 1/5$
- $\bigcirc$  -1/5
- $\bigcirc 1/10$
- $\bigcirc -1/10$
- $\bigcirc$  1
- $\bigcirc$  -1
- $\bigcirc$  2
- $\bigcirc -2$
- $\bigcirc$  5
- $\bigcirc$  -5
- $\bigcirc$  10
- $\bigcirc$  -10
- O none of these

 $\frac{R}{2} \left( \begin{array}{c} d & e & f \\ a & b & c \\ g & h & h \end{array} \right)$ 

$$R_i = R_i + SR_2$$

$$R = R_1 + SR_2$$

$$S_0 + 2d$$

$$S_0 + 2e$$

$$S_0$$