Math 1553, Quiz 6 (3.5-3.6 and Ch. 4), Fall 2026, Version B

Name (ALL CAPS)	Key	GT ID		Section	

Please write your name in ALL CAPS. 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 will be given a score of zero.

1. (1 point) Suppose A is an 3×3 matrix and $A\begin{pmatrix}1\\1\\0\end{pmatrix} = A\begin{pmatrix}0\\1\\1\end{pmatrix} = b$, then A cannot be invertible.

$Ax=b$ has more than one solution $\Rightarrow$ A not invertible (IMT)

● TRUE ○ FALSE

2. (1 point) Find A^{-1} for $A = \begin{pmatrix}3 & 1\\4 & 2\end{pmatrix}$. *Hint: check your answer.*

○ $A^{-1} = \begin{pmatrix}2 & -1\\-4 & 3\end{pmatrix}$ ○ $A^{-1} = \frac{1}{2}\begin{pmatrix}3 & -1\\-4 & 2\end{pmatrix}$ ○ $A^{-1} = \frac{1}{2}\begin{pmatrix}-2 & 1\\4 & -3\end{pmatrix}$

● $A^{-1} = \frac{1}{2}\begin{pmatrix}2 & -1\\-4 & 3\end{pmatrix}$ ○ $A^{-1} = \frac{1}{2}\begin{pmatrix}2 & 1\\4 & 3\end{pmatrix}$ ○ $A^{-1} = \frac{1}{10}\begin{pmatrix}2 & -1\\-4 & 3\end{pmatrix}$

○ none of these

$$\begin{bmatrix}3 & 1\\4 & 2\end{bmatrix}^{-1} = \frac{1}{6-4}\begin{bmatrix}2 & -1\\-4 & 3\end{bmatrix} = \frac{1}{2}\begin{pmatrix}2 & -1\\-4 & 3\end{pmatrix}$$

3. (1 point) Find the area of the triangle with vertices

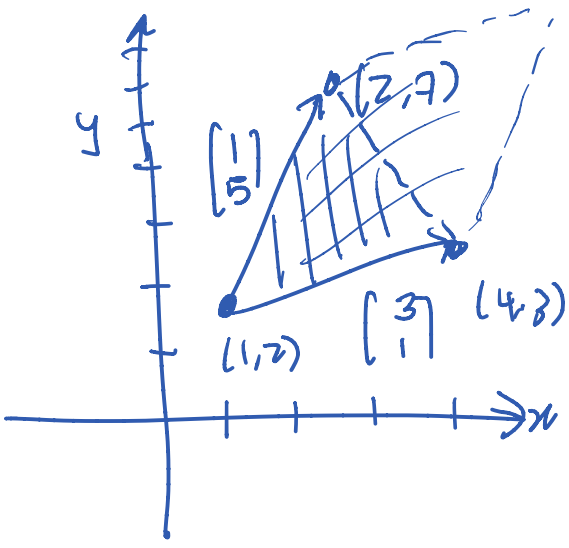
$$(1,2), \quad (4,3), \quad (2,7).$$

Clearly fill in the bubble for the correct answer below.
Hint: the triangle is half of a parallelogram.

○ $\frac{7}{2}$ ○ 14 ○ 16 ○ −14 ● 7 ○ 8 ○ none of these

Check

$$\begin{bmatrix}3 & 1\\4 & 2\end{bmatrix}\left(\frac{1}{2}\begin{bmatrix}2 & -1\\-4 & 3\end{bmatrix}\right) = \frac{1}{2}\begin{bmatrix}6-4 & 0\\0 & -4+6\end{bmatrix} = \begin{bmatrix}1 & 0\\0 & 1\end{bmatrix} \checkmark$$



$$A = \begin{bmatrix}3 & 1\\1 & 5\end{bmatrix}$$

$$\text{Area } \mathcal{P} = \frac{1}{2}|\det A|$$

$$= \frac{1}{2}|15-1| = \frac{1}{2}\cdot 14 = 7 \checkmark$$