| MA 237-02 <br> §3.1-3.4 | Quiz \#4 |  | Name: |
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1. Sketch the image of the unit square under the transformation induced by the matrix

$$
A=\left[\begin{array}{cc}
-3 & 1 \\
2 & 1
\end{array}\right]
$$

(7 points)

2. Short answer. (2 points each)
(a) If $A$ is a $\times 3$ matrix and $B$ is a $4 \times 2$ matrix, is either $A B$ or $B A$ defined? If so, give the size of the result.
(b) A linear transformation from $\mathbb{R}^{2}$ to $\mathbb{R}^{3}$ cannot be onto. (True or FALSE and explain.)
(c) If a linear transformation $T: \mathbb{R}^{m} \rightarrow \mathbb{R}^{n}$ is one-to-one, then $n \geq m$. (True or False and explain.)
3. Use the augmented matrix method to find the inverse of the matrix (7 points)

$$
A=\left[\begin{array}{lll}
1 & 1 & 3 \\
3 & 2 & 1 \\
0 & 0 & 1
\end{array}\right]
$$

