

**Math 304 Section 1 Quiz 3**

7/15/16

Name: \_\_\_\_\_

1. The matrix  $C = \begin{bmatrix} 1 & 2 \\ 2 & 4 \\ 2 & 4 \end{bmatrix}$  defines a function  $C : \mathbb{R}^2 \rightarrow \mathbb{R}^3$ .

(a) Is  $C$  one-to-one?

(b) Is  $C$  onto?

2. Let  $\mathbf{x}, \mathbf{y}, \mathbf{z}$  be vectors in a vector space  $V$  and let  $c$  be a scalar. Which of the following statements are axioms for vector spaces?

(a)  $(\mathbf{x} \times \mathbf{y}) \times \mathbf{z} = \mathbf{x} \times (\mathbf{y} \times \mathbf{z})$

(b)  $\mathbf{x} + (-\mathbf{x}) = \mathbf{0}$

(c)  $c\mathbf{0} = \mathbf{0}$

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