

# Linear Independence

MATH 204: Linear Algebra  
Prepare for class September 17, 2018

Name (Print): \_\_\_\_\_

After reading Section 1.7, answer the following questions.

1. Write down the definitions of a **linear independence** and **linear dependence** of a set of vectors.

2. (a) Complete exercise 1 of Section 1.7 on page 61.

(b) What is a linear dependence relation?

(c) If possible, find a linear dependence relation among the vectors.

3. Fill in the blank: FACT: The columns of matrix  $A$  are linearly independent if and only if

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4. True or False: A set containing only one vector is linearly independent. Justify your answer.

5. (a) Give an example of a set of two vectors that are linearly independent. Make up YOUR OWN example! Briefly explain why your example works.

- (b) Give an example of a set of two vectors that are linearly dependent. Make up YOUR OWN example! Briefly explain why your example works.

6. State Theorem 7.

7. What do we need to be careful of when using Theorem 7?