Part I (due Friday, February 9 at the beginning of class)

To review linear independence and dependence and prepare to delve into them more fully, download the Systems of Equations chapter from Linear Algebra and Applications: An Inquiry-Based Approach and read pages 111–116, stopping when you get to Examples (though you're welcome to look through the examples, too!). You don't need to do the activities therein except as assigned below.

Reading Questions

1. Explain in words what Theorem 6.5 is saying.

Part II (prepare for Friday, February 9)

1. Activity 6.4 in the section you read
2. Activity 6.5

Part III: Homework (due Wednesday, February 14♡ at the beginning of class)

1. For each S, determine when S is a linearly independent set. Fully explain your answer.
   (a) $S = \{\vec{v}\} \subset \mathbb{R}^n$.
   (b) $S = \{\vec{v}, \vec{w}\} \subset \mathbb{R}^n$
2. True or False? If true, prove; if false, give an explained counterexample.
   (a) If $\vec{v}$, $\vec{w}$, and $\vec{u}$ are three vectors such that no one of them is a multiple of another, then these vectors form a linearly independent set.
   (b) If $\{\vec{v}_1, \vec{v}_2, \vec{v}_3, \vec{v}_4\} \subset \mathbb{R}^n$ is a linearly independent set, then $\{\vec{v}_1, \vec{v}_2, \vec{v}_3\}$ is also linearly independent.
   (c) Any set of vectors containing the zero vector is linearly dependent.

Running list of vocabulary words that could be a quiz word

- linear equation
- system of linear equations
- linear combination of a set of vectors
- span of a set of vectors
- linearly independent
- linearly dependent

- reduced row echelon form
- pivot
- homogeneous system
- free variable
- row equivalent
- consistent system
- inconsistent system
- trace of a matrix
- transpose of a matrix
- inverse of a matrix
- elementary matrix