

Part I (due Monday, February 12 at the beginning of class)

Read pages 125–128 of Section 7 of the Systems of Equations chapter in <https://scholarworks.gvsu.edu/books/21/>. Also, think a bit more about how we can prove the missing parts of the equivalences with what we added to the Purple Theorem on Friday:

- (e) The columns of A are linearly independent.
- (f) The columns of A span \mathbb{R}^n .
- (g) The columns of A form a basis for \mathbb{R}^n .
- (h) A has a pivot position in every column.
- (i) $A\vec{x} = \vec{b}$ has exactly one solution for every $\vec{b} \in \mathbb{R}^n$.

We still need (e) implies something, (i) implies something, and (f) and (g) are implied by and imply something.

Reading Questions

1. Preview Activity 7.1.

Part II (due Wednesday, February 14♥)

There will be a [WeBWorK](#) assignment posted by Friday night.

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

1. True or false? If true, prove; if false, give an explained counterexample.
 - (a) If A is a square matrix whose diagonal entries are all nonzero, then A is invertible.
 - (b) If A is a square matrix with two identical rows, then A is not invertible.
 - (c) There is a 2×2 matrix A such that A is not the zero matrix and $AA = A$.

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