Part I (due Wednesday, March 20 at the beginning of class)

You don't need to turn anything in on Wednesday for Part I, but think more about what things we can add to the Purple Theorem and come prepared to share your list.

Part II (due Wednesday, March 20)

No Part II this time beyond the WeBWorK assigned on Friday.

Part III: Homework (due Wednesday, March 20 at the beginning of class)

1. Suppose A is a 3×5 matrix.
   (a) What is the largest rank(A) can be? Why?
   (b) What is the largest nullity(A) can be? Why?
   (c) What is the largest rank(A^T) can be? Why?
   (d) What is the largest nullity(A^T) can be? Why?
2. True or false? If true, prove; if false, give an explained counterexample.
   (a) For an $m \times n$ matrix A, the rank of A is equal to the dimension of the row space of A.
   (b) For an $m \times n$ matrix A with $m \neq n$, either the row vectors of A or the column vectors of A are 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
- transformation
- domain
- codomain
- range
- vector space (I will not ever ask you to define this on a quiz—the definition is way too long—but you should make sure you know what makes something a vector space)
- subspace
- basis
- finite-dimensional vector space
- dimension
- coordinate vector
- column space of A
- row space of A
- null space of A
- rank
- nullity