Part I

For Theorem 3 on the green Determinants handout, the blank in (a) should be filled in with $c\det(B)$, the blank in (b) should be filled in with $-\det(B)$, and the blank in (c) should be filled in with $\det(A)$. You don't need to turn anything in for Part I this time, but you need this result to do Part II.

Part II: Exercises (prepare for class for Wednesday, April 17)

Example 1 on the green Determinants handout.

Part III: Homework (due Wednesday, April 24 at the beginning of class)

1. True or False? If true, prove; if false, give an explained counterexample.
   (a) Two square matrices can have the same determinant if and only if they are the same size.
   (b) If A and B are matrices of the same size, then $\det(A+B) = \det(A) + \det(B)$.
   (c) If A and B are matrices of the same size such that $\det(A) = \det(B)$, then $\det(A+B) = 2\det(A)$.
2. Show that if E is an elementary matrix, the only options for the determinant of E are 1, -1, and k, where k is a nonzero constant.

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
- linear transformation
- kernel
- range
- isomorphism
- isomorphic vector spaces