Every week the TAs are trained to solve the upcoming week’s problems, so it isn’t imperative that you be perfect at everything below, but you should feel that with a little refreshing you could pick up the following easily. Any of these topics are fair game for the test, though:

(bolded topics you should have down cold)

**Math 313—Linear Algebra:**
- Gauss-Jordan Elimination
- Matrix Operations
- Properties of Determinants
- Inverse of a matrix
- Linear Independence
- Vector Spaces, Subspaces
- Column Space, Nullspace
- Wronskian
- Inner Products
- **Orthogonality/ Orthonormality**
- Least Squares
- Gram-Schmidt Process
- **Eigenvalues/Eigenvectors**
- Diagonalization
- Linear Transformations
- Range and Kernel
- Similarity
- Change of Basis

**Math 314—Multivar. Calculus:**
- Max/Min/Saddle Points
- Lagrange Multipliers
- Vector Fields
- Parameterization
- Line Integrals
- Surface Integrals
- Green’s Theorem
- Stokes Theorem
- Divergence Theorem

**Math 334—Differential Equations:**
- Direction Fields
- Order, Linearity
- **Separable Equations**
- 1st Order Linear Equations
- Exact Equations
- Autonomous Equations
- **Homogeneous ODEs w/ constant coefficients**
- Reduction of Order
- Undetermined coefficients
- Variation of Parameters
- Mechanical Vibrations
- Series Solutions
- Regular/Singular Points
- Euler Equations
- Laplace Transform
- Delta Function, Convolution
- Systems of Differential Eqs.