

- 4.1 - Linear Transformations (definitions and examples)
 1. domain, range, kernel
 2. verifying linearity
- 4.2 - Matrix Representations
 1. find matrix of linear transformation in standard basis
 2. find matrix of linear transformation in non standard basis
 3. geometrical interpretations (projection, reflection, stretch, rotation, etc).
- 4.3 Similarity
 1. determine whether two matrices are similar
- 5.1 Scalar Product
 1. vector projection
 2. scalar projection
 3. distance of point to line, point to plane
- 5.2 Orthogonal Subspaces
 1. Orthogonal complement
 2. basis for orthogonal complement
- 5.3 Least Squares Problems
 1. finding best fit for set of functions (linear, quadratic, etc)
- 5.4 Inner Product Spaces
 1. length of vectors (in terms of inner products)
 2. angle between vectors and functions
- 5.5 Orthonormal Sets
 1. finding basis vectors orthogonal to given set of vectors

For practice, look at Chapter Tests for Chapter 4 (pp. 208-209), and Chapter 5 (pp 295-297).