In your solutions, please state clearly which homework set this replaces.

1. Derive Eq. 3.1.34 (scattering amplitude)
2. Derive Eq. 4.7.31 (E1 excitation). Some indications given in problem 4.5 of the book.
3. Derive Eq. 5.1.6 (Feshbach projection)
4. Derive Eq. 5.1.31 and 5.1.32 (gaussian density distribution)
5. Prove 5.2.10 (spectral decomposition)