## Final Exam Practice Problems

### Exam 1 Practice Problems

- **2-D Vector Components**: 2.21 – 2.25, 2.36, 2.37
- **3-D Vector Components**: 2.71, 72, 85
- **Dot Product and Cross Product**: 3.17, 35, 39, 40, 41, 46, 55, 57
- **Moments**: 3.5, 22, 26
- **Couples**: 3.71, 73, 74, 78, 81a
- **Equivalent Force-Couple Systems**: 3.104, 119, 120, 124

### Exam 2 Practice Problems

- **Particle Equilibrium**: 2.43, 2.44, 2.48, 2.63, 2.67
- **2-D Rigid Body Equilibrium**: Ch. 4: 1, 4, 6, 7, 15, 19, 22, 28, 31, 33, 39, 41, 46, 48, 66, 73
- **3-D Rigid Body Equilibrium**: Ch. 4: 97 (hint for 97: sum moments about line AB to find the tension in C), 105, 106, 108, 117a, 138. Note that this textbook does not contain problems with 3-D fixed connections. Make sure you review the homework problem and example problem solved in class that utilized 3-D fixed connections.
- **Trusses**: Ch. 6: 11, 12, 15, 24, 43, 46, 49, 53, 62

### Review problems for topics covered since Exam 2 (all of these topics are guaranteed to be included on the Final Exam)

- **Frames and Machines**: Ch. 6: 76, 77, 79, 95, 101, 103, 122, 123, 127, 129, 143, 145, 148, 153, 154
- **Centroids/Center of Mass**: Ch. 5: 1, 2, 3, 4, 5, 6, 29, 102, 104, 109, 114, 118
- **Second Moment of Area**: Ch. 9: 31, 39, 42, 43
- **Mass Moment of Inertia**: Ch. 9: 133, 141, 142, 143, 145

### Suggested problems to make your own practice exam: 3.55, 4.108, 5.100, 6.53, 6.122, 9.42, and 9.142 (calc. Ix only). These problems combined may take longer than two hours to solve. But these problems are similar to those you may see on the final exam.