Physics 820 homework I, due Wed Sep 3

Reading: Chapter 1.1-6

Problems:

1. Goldstein, Problem 1.6.

2. Goldstein, Problem 1.8.

3. Goldstein, Problem 1.13. The velocity of escaping gases is, actually, $v' = 2.1 \times 10^3\,\mathrm{m/s}$.

4. Goldstein, Problem 1.19. The term 'spherical' indicates that the mass can move over the surface of a sphere, in distinction from a motion over the circumference of a circle.

5. Problem from S03 Final: A smooth wedge of mass M has a triangular cross section with a side inclined at an angle θ to the horizontal base. The wedge can slide without friction along a horizontal support. Placed on the side of the wedge is a mass m that can slide with no friction along the side. Find vectors of the acceleration for the wedge and for m after the bodies are released from rest.