Physics 202 homework problems for Chapter 36 (due Wednesday Dec 7):

Chapter 36: 2, 12, 18, 27, 34, 40, 48, 51, 56 and S1 (omit problem 75)
And special problems:

S1:
A disadvantage of the telescope design you have studied so far is that the image is inverted. An improvement is the Galilean telescope; it uses a converging lens as the objective, but a diverging lens as the eyepiece. The image formed by the objective is behind the eyepiece at its focal point so that the final image is virtual, upright, and at infinity.

a. Draw a ray diagram to show that the final image is indeed virtual, upright, and at infinity.

b. Show that the magnifying power is $M = -f_o/f_e$, where $f_o$ is the focal length of the objective and $f_e$ is the focal length of the eyepiece (which is negative).