Homework Set No. 1, Physics 836

Deadline – Wednesday, April 2, 2008

1. (10 pts) Jackson Problem 11.5

2. (10 pts) Jackson Problem 11.6

3. (10 pts) A perfect flat mirror is moving with velocity u in the direction normal to its surface. A monochromatic wave with frequency ω is incident on the mirror at an angle θ with respect to the direction normal to the mirror's surface. Assuming that in the rest frame of the mirror the angle of reflection is equal to the angle of incidence (i.e. usual optics works), find the direction of propagation and the frequency of the reflected wave (in the original frame in which the mirror is moving with velocity u).