

Physics 108 Homework Assignment#1 (due on 4/10/2017)

**Reading materials:**

*Pedrotti 3<sup>rd</sup> Edition:*      **Chapter 1:** 1-1; 1-2; 1-3;  
   **Chapter 2:** 2-1; 2-2; 2-4; 2-5; 2-6; 2-7; 2-8  
*Lecture Notes:*                pp. 1-17

**Homework:** (Pedrotti 3<sup>rd</sup> Edition)

1.      2-4
2.      2-5
3.      2-6
4.      2-8
5.      2-9
6.      2-10
7.      2-32
8.      2-34
9.      Derive the refraction equation with  $n_2 < n_1$ ,  $s_1 > 0$  (the object is on the left side or the side before refraction), and  $R < 0$  (the center of curvature  $C$  on the left side or the side before refraction). From your result, show that  $n_1/s_1 + n_2/s_1' = (n_2 - n_1)/R$  if the sign convention for  $s_1$ ,  $R$ , and  $s_1'$  is used.
10.    **Optional for two extra points:** Derive the refraction equation with  $n_2 < n_1$ ,  $s_1 < 0$  (the object is on the right side or the side after refraction), and  $R > 0$