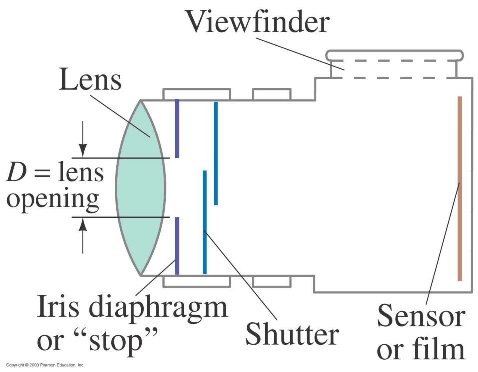
DUE: WEDNESDAY FEBRUARY 25, 2009

Assigned reading: Giancoli, Chapter 32, sections 5–8, and Chapter 33, sections 1–5.

MIDTERM ALERT: The second midterm exam will be given on Friday February 27, 2009 in Thimann Lecture Hall 3 from 9:30–10:40 am. The midterm will test you on material from chapters 15 and 16, section 6 of chapter 31, chapter 32 and the first four sections of chapter 33 of Giancoli. This will be a closed-book exam. However, during the exam you will be permitted to consult *two* 8 1/2" $\times$ 11" sheets of paper of personal notes (two-sided is fine). Feel free to include on this sheet the key formulae and concepts that you will find most useful for working out the exam problems. You should also bring a calculator, as some of the problems will require numerical work.

Practice problems for the second midterm exam will be available one week before the exam. The solutions to these problems will be discussed in a special review session, which will be led by Laura Daniel. This review session is tentatively scheduled for Wednesday February 25 from 7–9 pm in Thimann Lecture Hall 3. An additional exam review session led by Glenn Gray will take place in ISB Room 221 on Thursday February 26 from 12:00–1:30 pm.

1. True/false questions: For each of the following statements, indicate whether the statement is true or false. Briefly explain your reasoning (for example, if false, provide a counter-example).
   (a) It is possible for a spherical mirror to have a negative object distance.
   (b) When a wide beam of parallel light enters water at an angle, the beam broadens.
   (c) A light ray traveling in air can be totally reflected when it strikes a smooth water surface if the incident angle is chosen correctly.
   (d) A diverging lens can never form a real image under any circumstance.
   (e) The thicker a double convex lens is in the center as compared to its edges, the longer its focal length for a given lens diameter.
   (f) A photographer moves closer to her subject and then refocuses the camera. The camera lens moves farther away from the sensor or film [Have a look at a schematic depiction of simple camera shown in Figure 33-18 on p. 878 of Giancoli, which is reproduced at the top of the next page].



To earn full credit on the following problems, you must exhibit the steps that lead to your final result. The graded homework will be based on the clarity of your method of solution as well as on your final answer.

2. Giancoli, Chapter 32, problem 44
3. Giancoli, Chapter 32, problem 48
4. Giancoli, Chapter 32, problem 55
5. Giancoli, Chapter 32, problem 63
6. Giancoli, Chapter 32, problem 66
7. Giancoli, Chapter 32, problem 68
8. Giancoli, Chapter 33, problem 10
9. Giancoli, Chapter 33, problem 19
10. Giancoli, Chapter 33, problem 26
11. Giancoli, Chapter 33, problem 32