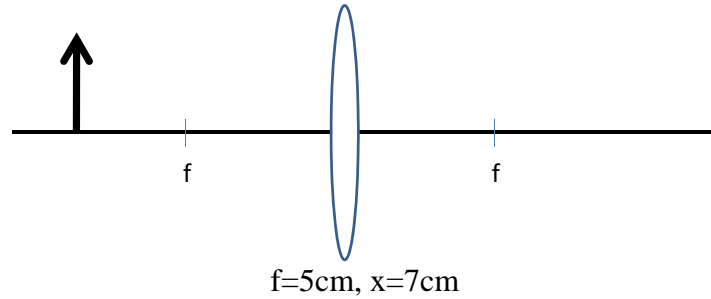


Homework 4

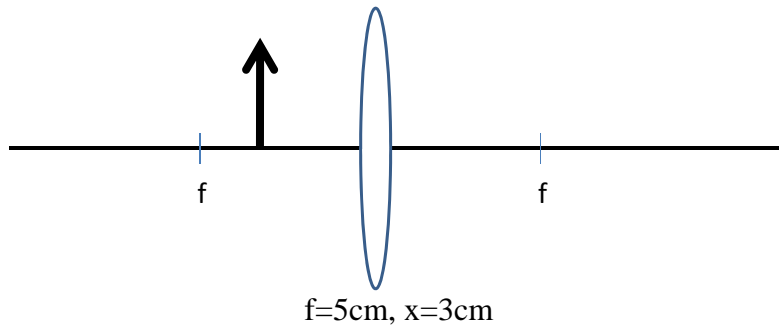
Due in class on September 22, 2010

1. Perform the ray tracing, find whether the image is real/virtual, find the position and magnification of the image for the following 4 cases

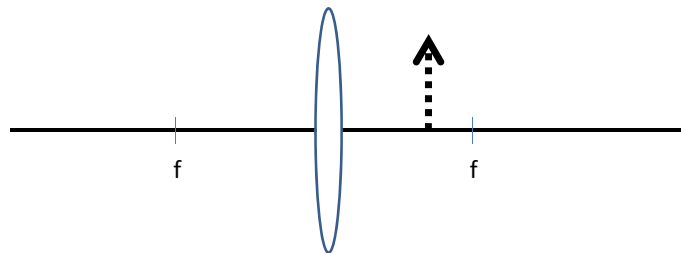
a.



b.

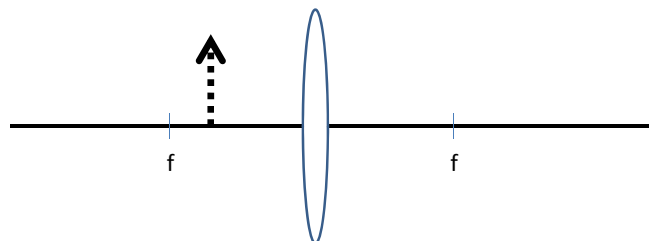


c.



Virtual object: $f=5\text{cm}, x=-3\text{cm}$ (hint: it may help to use the “previous” lens that created the object)

d.



Virtual object: $f=5\text{cm}, x=3\text{cm}$ (hint: it may help to use the “previous” lens that created the object)

2. Problem 1.2-7 from the Book by Saleh
3. Problem 1.2-8
4. Problem 1.2-9
5. Problem 1.2-10
6. Find the principle planes of the ball lens in Problem 5 (both in air and water)
7. Problem 1.4-8
8. Problem 1.4-9