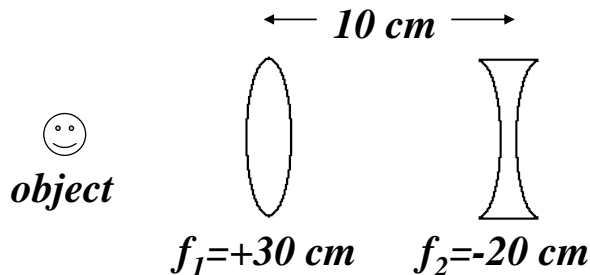
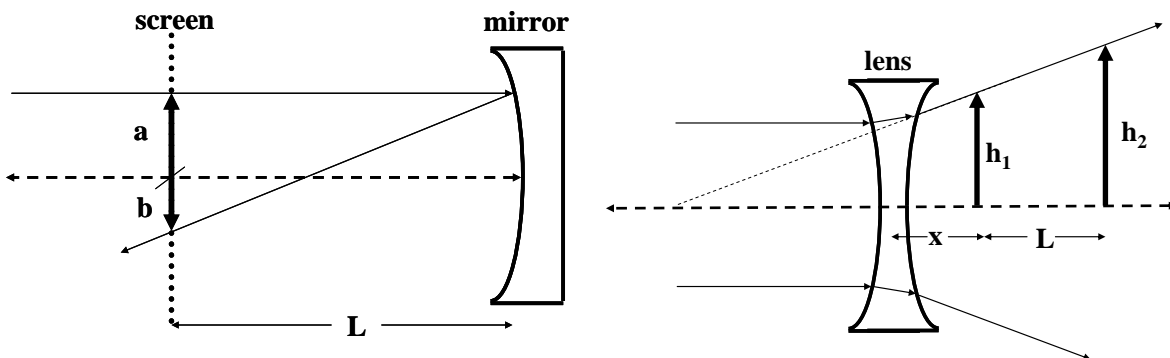


Phys 375 HW 3
Fall 2010
Due 4 October, 2010

1. Imagine that you are standing 5 feet from, and looking directly toward, a reflective brass ball 1 foot in diameter hanging in front of a pawn shop. State the type of image, position, magnification, and whether it is upright or inverted.
2. Design a little dentist's mirror to be fixed at the end of a shaft for use in the mouth of some happy soul. The requirements are (1) that the image be erect as seen by the dentist and (2) and that when held 1.5 cm from a tooth the mirror produces an image twice life-size.
3. A candle that is 6.00 cm tall is standing 10 cm from a thin diverging lens whose focal length is -30 cm. Determine the location of the image and state the type of image, magnification, and whether it is upright or inverted.
4. Compute the image location and magnification of an object 30 cm from the front lens of the thin lens combination shown in the figure below. Do the calculation by finding the effect of each lens separately and make a sketch of the appropriate rays.



5. Using geometry and the diagram below left, calculate the focal length of the mirror in terms of a , b , and L for two cases: a) screen outside the focal length (as shown in the diagram), b) screen inside the focal length (not shown, so create a new sketch).



6. Using geometry and the diagram above right, find the focal length of the diverging lens in terms of h_1 , h_2 , L and x .