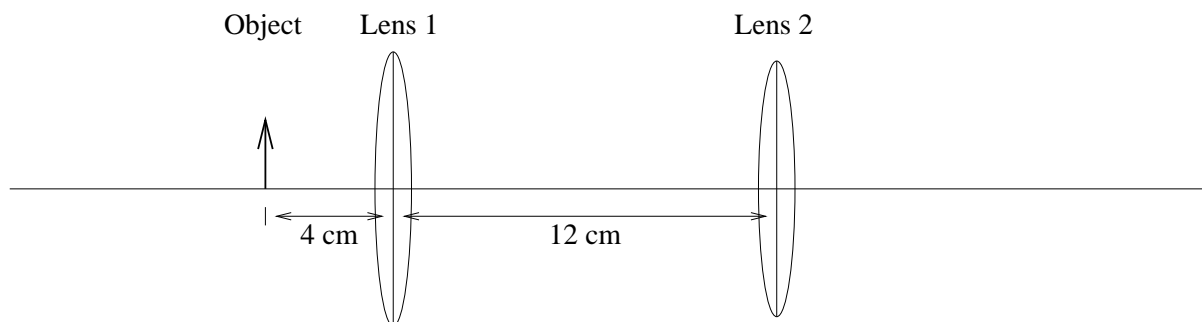


Optic and Thermodynamics Proficiency Exam, Spring 2002



1. A combination of two thin, convex lenses are placed as shown in the figure. An object is placed 4 cm in front of the first lens, which has a focal length of 12 cm. The second lens is 12 cm behind the first and has a focal length of 6 cm.
 - (a) Use the thin-lens formula to find the image of the first lens, and show it through a ray-diagram on the sketch.
 - (b) Is the image real or virtual?
 - (c) Find the image for the lens combination using the thin-lens formula, and use a ray-diagram to mark the image at the correct location on the sketch.
 - (d) Is the resulting image real or virtual?