This print-out should have 15 questions. Multiple-choice questions may continue on the next column or page – find all choices before answering.

001 (part 1 of 3) 10.0 points
A diverging lens has a focal length of \(-24\) cm. An object 2.67 cm in height is placed 272 cm in front of the lens.
Locate the position of the image. Answer in units of cm.

002 (part 2 of 3) 10.0 points
What is the magnification?

003 (part 3 of 3) 10.0 points
Find the height of the image. Answer in units of cm.

004 10.0 points
A converging lens of focal length 0.235 m forms a virtual image of an object. The image appears to be 0.921 m from the lens on the same side as the object.
What is the distance between the object and the lens? Answer in units of m.

005 10.0 points
A converging lens has a focal length of 32.5 cm.
If the object is 72 cm from the lens, what is the image distance? Answer in units of cm.

006 (part 1 of 4) 10.0 points
A thin converging lens of focal length 11.6 cm forms an image of an object placed 20.7 cm from the lens.
Find the image distance. Answer in units of cm.

007 (part 2 of 4) 10.0 points
What is the magnification for an object distance of 20.7 cm?

008 (part 3 of 4) 10.0 points
Find the location of the image for an object distance of 3.43 cm. Answer in units of cm.

009 (part 4 of 4) 10.0 points
Calculate the magnification for an object distance of 3.43 cm.

010 (part 1 of 3) 10.0 points
The image formed by a thin converging lens is located at a position that is a distance from the lens that is 3 times the focal length, \(f\).
If the image is real, what is the object distance in units of the focal length, \(f\)? Answer in units of \(f\).

011 (part 2 of 3) 10.0 points
If the image is virtual, what is the object distance in units of the focal length, \(f\)? Answer in units of \(f\).

012 (part 3 of 3) 10.0 points
What is the magnification of the lens for the case in which the image is virtual?

013 (part 1 of 3) 10.0 points
Two converging lenses, each of focal length 8 cm, are separated by 38 cm. An object is 18 cm to the left of the first lens.
What is the position of the final image? Answer in units of cm.

014 (part 2 of 3) 10.0 points
What is the overall lateral magnification of the image?

015 (part 3 of 3) 10.0 points
What is the nature of the image?
1. The image is real and upright.
1. Impossible to determine.
2. The image is virtual and inverted.
3. The image is real and inverted.
5. The image is virtual and upright.