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

Please notice that for your homework to be considered towards your grade, it needs to be submitted one hour before the corresponding recitation starts. Work submitted after this time, but before the DUE DATE on top of this page, will be accepted but not graded.

PLEASE REMEMBER THAT YOU MUST CARRY OUT YOUR CALCULATIONS TO AT LEAST THREE SIGNIFICANT FIGURES. YOUR ANSWER MUST BE WITHIN ONE PERCENT OF THE CORRECT RESULT TO BE MARKED AS CORRECT BY THE SERVER.

Converging Lens 04

36:08, trigonometry, numeric, > 1 min, normal.

001

A converging lens of focal length 0.15 m forms a virtual image of an object. The image appears to be 0.85 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.

Converging Lens 05

36:08, trigonometry, numeric, > 1 min, normal.

002

A converging lens has a focal length of 25.5 cm.

If the object is 72.5 cm from the lens, what is the image distance? Answer in units of cm.

Diverging Lens 05

36:08, trigonometry, numeric, > 1 min, normal.

003

A diverging lens has a focal length of −20 cm. An object 2 cm in height is placed 30 cm in front of the lens.

Locate the position of the image. Answer in units of cm.

004

What is the magnification?

005

Find the height of the image. Answer in units of cm.

Thin Converging Lens

36:08, trigonometry, numeric, > 1 min, normal.

006

A thin converging lens of focal length 10 cm forms an image of an object placed 30 cm from the lens.

Find the image distance. Answer in units of cm.

007

What is the magnification for an object distance of 30 cm?

008

Find the location of the image for an object distance of 5 cm. Answer in units of cm.

009

Calculate the magnification for an object distance of 5 cm.

Thin Converging Lens 02

36:08, trigonometry, numeric, > 1 min, normal.

010

The image formed by a thin converging lens is located at a position that is a distance from the lens that is 4 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

If the image is virtual, what is the object distance in units of the focal length, f? Answer in units of f.

012

What is the magnification of the lens for the case in which the image is virtual?

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36:09, trigonometry, numeric, > 1 min, normal.

013

Two converging lenses, each of focal length 10 cm, are separated by 35 cm. An object is 20 cm to the left of the first lens.

What is the position of the final image? Answer in units of cm.

014

What is the overal lateral magnification of the image?

015

What is the nature of the image?

1. The image is real and upright.

2. The image is real and inverted.

3. The image is virtual and upright.

4. The image is virtual and inverted.

5. Impossible to determine.