Ch36 (Homework)
Current Score : – / 57 **Due :** Monday, August 27 2018 02:33 PM CDT

---

1. –/15 pointsSerPSE9 36.P.009.MI.FB.

A concave spherical mirror has a radius of curvature of magnitude 19.4 cm.

(a) Find the location of the image for the following object distances. (If there is no image formed enter "NONE".)

object distance (cm)	image distance (cm)	location
39.8		---Select---
19.4		---Select---
9.7		---Select---

(b) For each case, state whether the image is real or virtual.

object distance (cm)	real/virtual
39.8	---Select---
19.4	---Select---
9.7	---Select---

(c) For each case, state whether the image is upright or inverted.

object distance (cm)	real/virtual
39.8	---Select---
19.4	---Select---
9.7	---Select---

(d) Find the magnification in each case. (If there is no image formed enter "NONE".)

object distance (cm)	magnification
39.8	
19.4	
9.7	

Need Help? Read It Master It

2. –/6 pointsSerPSE9 36.P.011.MI.FB.

A convex spherical mirror has a radius of curvature of magnitude 46.0 cm.

(a) Determine the position of the virtual image and the magnification for object distances of 41.0 cm. Indicate the location of the image with the sign of your answer.

image location = [ ] cm

magnification = [ ]

(b) Determine the position of the virtual image and the magnification for object distances of 53.0 cm. Indicate the location of the image with the sign of your answer.

image location = [ ] cm

magnification = [ ]

(c) Are the images in parts (a) and (b) upright or inverted?

The image in part (a) is ---Select---

The image in part (b) is ---Select---

Need Help? Read It Master It

3. –/2 pointsSerPSE9 36.P.014.

A dentist uses a spherical mirror to examine a tooth. The tooth is 1.25 cm in front of the mirror, and the image is formed 11.6 cm behind the mirror.

(a) Determine the mirror's radius of curvature.

[ ] cm

(b) Determine the magnification of the image.

[ ]

Need Help? Read It

4. –/2 pointsSerPSE9 36.P.031.

The top of a swimming pool is at ground level. If the pool is 1.98 m deep, how far below ground level does the bottom of the pool appear to be located for the following conditions?

(a) The pool is completely filled with water.

_____ m below ground level

(b) The pool is filled halfway with water.

_____ m below ground level

Need Help? Read It

5. –/12 pointsSerPSE9 36.P.044.

A converging lens has a focal length of 12.2 cm. Construct accurate ray diagrams for object distances of (i) 24.4 cm and (ii) 2.44 cm.

(a) From your ray diagrams, determine the location of each image.

Image (i) distance [ ] cm

location ---Select---

Image (ii) distance [ ] cm

location ---Select---

(b) Is the image (i) real or virtual?

- real
- virtual

Is the image (ii) real or virtual?

- real
- virtual

(c) Is the image (i) upright or inverted?

- upright
- inverted

Is the image (ii) upright or inverted?

- upright
- inverted

(d) What is the magnification of the image?

Image (i) [ ]

Image (ii) [ ]

(e) Compare your results with the values found algebraically.

This answer has not been graded yet.

(f) Comment on difficulties in constructing the graph that could lead to differences between the graphical and algebraic answers.

This answer has not been graded yet.

Need Help? Read It

6. –/15 pointsSerPSE9 36.P.046.

A diverging lens has a focal length of magnitude 17.0 cm.

(a) Locate the images for each of the following object distances.

34.0 cm

distance [ ] cm

location ---Select---

17.0 cm

distance [ ] cm

location ---Select---

8.5 cm

distance [ ] cm

location ---Select---

(b) Is the image for the object at distance 34.0 real or virtual?

- real
- virtual

Is the image for the object at distance 17.0 real or virtual?

- real
- virtual

Is the image for the object at distance 8.5 real or virtual?

- real
- virtual

(c) Is the image for the object at distance 34.0 upright or inverted?

- upright
- inverted

Is the image for the object at distance 17.0 upright or inverted?

- upright
- inverted

Is the image for the object at distance 8.5 upright or inverted?

- upright
- inverted

(d) Find the magnification for the object at distance 34.0 cm.

Find the magnification for the object at distance 17.0 cm.

Find the magnification for the object at distance 8.5 cm.

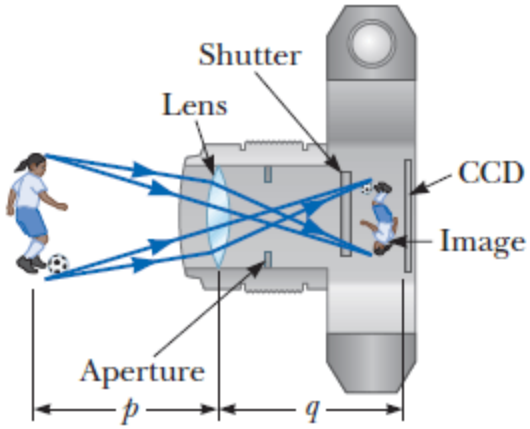
Need Help? Read It

---

7. –/2 pointsSerPSE9 36.P.057.

The figure below diagrams a cross section of a camera. It has a single lens of focal length 61.0 mm, which is to form an image on the CCD at the back of the camera. Suppose the position of the lens has been adjusted to focus the image of a distant object. How far and in what direction must the lens be moved to form a sharp image of an object that is 2.40 m away?

mm ---Select---



Need Help? Read It

8. –/2 pointsSerPSE9 36.P.059.

The near point of a person's eye is 53.8 cm. To see objects clearly at a distance of 24.0 cm, what should be the focal length and power of the appropriate corrective lens? (Neglect the distance from the lens to the eye.)

(a) focal length of the appropriate corrective lens

[ ] cm

(b) power of the appropriate corrective lens

[ ] diopters

Need Help? Read It

9. –/1 pointsSerPSE9 36.P.067.

The distance between the eyepiece and the objective lens in a certain compound microscope is 24.0 cm. The focal length of the eyepiece is 2.45 cm and that of the objective is 0.380 cm. What is the overall magnification of the microscope?

[ ]

Need Help? Read It