

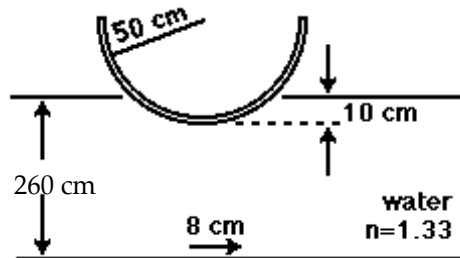
PHYSICS 6C PRACTICE QUIZ 2

THE FOLLOWING MULTIPLE CHOICE QUESTIONS ARE NOT TO BE TURNED IN FOR GRADING. THEY ARE INTENDED AS A SELF EVALUATION QUIZ AND PRACTICE FOR THE FIRST MIDTERM EXAM

MULTIPLE CHOICE. Choose the ONE alternative that BEST completes the statement or answers the question.

1)

Figure 1



A thin hemispherical bowl of clear plastic floats on water in a tank. The radius of the bowl is 50 cm and the depth of the bowl in water is 10 cm. The depth of the water ($n = 1.33$) in the tank is 260 cm. An object 8.0 cm long is on the bottom of the tank directly below the bowl. The object is viewed from directly above the bowl. Ignore the refractive effects of the plastic. In Figure 1, the size of the image, in cm, is closest to:

- A) 3.6
 - B) 5.2
 - C) 7.0
 - D) 10
 - E) 12
- 2) A fisherman in a stream 35 cm deep looks downward into the water and sees a rock on the stream bed. How deep does the stream appear to the fisherman? Assume that the index of refraction of the water is 1.33.
- A) 26 cm
 - B) 47 cm
 - C) 30 cm
 - D) 40 cm
- 3) A double convex thin glass lens has equal radii of curvature. The focal length of the lens is +54.0 cm and the index of refraction of the glass is 1.52. The radius of curvature of each convex surface, in cm, is closest to:
- A) 45
 - B) 67
 - C) 51
 - D) 56
 - E) 62

Situation 24.1

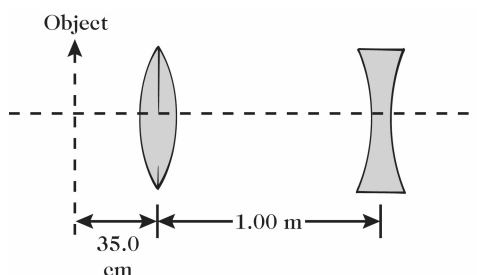
An erect object is 50 cm from a concave mirror of radius 60 cm.

- 4) In Situation 24.1, the object is moved to a new position, such that the new lateral magnification is +2.5. The new object distance, in cm, is closest to:
- A) 24
 - B) 30
 - C) 36
 - D) 42
 - E) 18
- 5) If a single lens forms a virtual image of an object, then
- A) The lens must be a diverging lens.
 - B) The lens must be a converging lens.
 - C) The lens could be either a diverging or a converging lens.
 - D) The image must be inverted.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

6)

Figure 2



Two thin lenses, one a converging lens and the other a diverging lens, are separated by 1.00 m along the same principal axis, as shown in Figure 2. The magnitude of the focal length of the converging lens is 25.0 cm, while the magnitude of the focal length of the diverging lens is 40.0 cm. An object 8.25 cm tall is placed 35.0 cm to the left of the converging lens. (a) Where is the final image produced by this combination of lenses? (b) Compared to the object, is the final image erect or inverted? Is it real or virtual?