

PHYSICS 6C PRACTICE QUIZ 3

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) Select which statement is correct in describing the image formed by a thin lens of a real object placed in front of the lens.
 - A) If the lens is convex, the image will never be virtual.
 - B) If the image is real, then it is also inverted.
 - C) If the image is real, then it is also upright.
 - D) If the image is real, then it is also enlarged.

- 2) An object is placed between C and F in front of a concave mirror with a focal length of 10 cm. What is the position of its image in relation to the mirror and what are its characteristics?
 - A) = 10 cm, real, smaller than object
 - B) = 10 cm, virtual, smaller than object
 - C) > 20 cm, real, larger than object
 - D) = 20 cm, real, same size as the object
 - E) = 20 cm, virtual, same size as the object

- 3) A 4.0 cm tall object is placed 60 cm away from a converging lens of focal length 30 cm. What is the nature and location of the image?
 - A) The image is real, 2.5 cm tall, 30 cm on the same side as object.
 - B) The image is virtual, 2.5 cm tall, 30 cm on the other side of the lens.
 - C) The image is virtual, 2.0 cm tall, 15 cm on the other side of the lens.
 - D) The image is virtual, 4.0 cm tall, 60 cm on the same side as object.
 - E) The image is real, 4.0 cm tall, 60 cm on the other side of the lens.

- 4) You wish to obtain a magnification of -2 from a convex lens of focal length f . The only possible solution is to
 - A) place a virtual object at a distance $3f/2$ from the lens.
 - B) place a real object at a distance $3f/2$ from the lens.
 - C) place a virtual object at a distance $2f/3$ from the lens.
 - D) place a real object at a distance $2f/3$ from the lens.
 - E) place a virtual object at a distance $5f/3$ from the lens.

QUESTIONS 5 AND 6 ARE PRACTICE FOR THE SECOND MIDTERM

- 5) A person's eye lens is 2.7 cm away from the retina. What must the focal length of this lens be in order for an object placed at the near point ($N = 25.0$ cm) of the eye to focus on the retina?
 - A) -3.4 cm
 - B) -2.4 cm
 - C) 2.4 cm
 - D) 3.4 cm
 - E) 2.6 cm

- 6) A 35 mm camera equipped with a 40 mm focal length lens is used to photograph a tree 17 m tall. The aperture of the lens is set at $f/8$. A 32 mm high image of the tree on the film is required. The required distance, between the tree and the camera, to take the photograph is closest to:
- A) 21 m
 - B) 22 m
 - C) 23 m
 - D) 24 m
 - E) 26 m