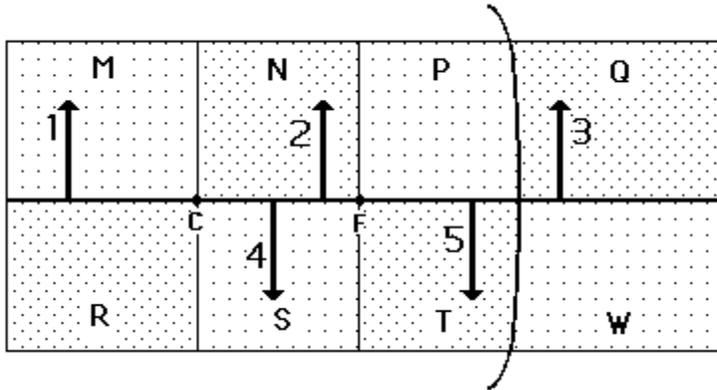


CURVED MIRRORS PRACTICE

The diagram below shows a spherical surface that is silvered on both sides. Thus, the surface serves as double-sided mirror, with one of the sides being the concave and one being the convex side. The principal axis, focal point, and center of curvature are shown. The region on both sides of the mirror is divided into eight sections (labeled M, N, P, Q, R, S, T, and W). Five objects (labeled 1, 2, 3, 4, and 5) are shown at various locations about the double-sided mirror. Use the diagram to answer the questions #1-6.



1. The image of object 1 would be located in section _____.
M N P Q R S T W
2. The image of object 2 would be located in section _____.
M N P Q R S T W
3. The image of object 3 would be located in section _____.
M N P Q R S T W
4. The image of object 4 would be located in section _____.
M N P Q R S T W
5. The image of object 5 would be located in section _____.
M N P Q R S T W
6. The double-sided mirror would cause virtual image to be formed of objects _____.
a. 1, 2, and 4 b. 1, 2, and 3 c. 3 and 5 d. 4 and 5 e. 3 only
7. How can a plane mirror, concave mirror, and/or convex mirror be used to produce an image that has the same size as the object?
8. How can a plane mirror, concave mirror, and/or convex mirror be used to produce an upright image?

9. How can a plane mirror, concave mirror, and/or convex mirror be used to produce a real image?

10. The image of an object is found to be upright and reduced in size. What type of mirror is used to produce such an image?

Mirror Equation Problems

1. Determine the image distance and image height for a 5.00-cm tall object placed 45.0 cm from a concave mirror having a focal length of 15.0 cm.

2. Determine the image distance and image height for a 5.00-cm tall object placed 30.0 cm from a mirror having a focal length of 15.0 cm.

3. Determine the image distance and image height for a 5.00-cm tall object placed 20.0 cm from a mirror having a focal length of 15.0 cm.

4. Determine the image distance and image height for a 5.00-cm tall object placed 10.0 cm from a mirror having a focal length of 15.0 cm.

5. A magnified, inverted image is located a distance of 32.0 cm from a mirror with a focal length of 12.0 cm. Determine the object distance and tell whether the image is real or virtual.

6. An inverted image is magnified by 2 when the object is placed 22 cm in front of a mirror. Determine the image distance and the focal length of the mirror.

7. A mirror has a focal length of -10.8 cm. An object is placed 32.7 cm from the mirror's surface. Determine the image distance.

8. Determine the focal length of a convex mirror that produces an image that is 16.0 cm behind the mirror when the object is 28.5 cm from the mirror.

9. A 2.80-cm diameter coin is placed a distance of 25.0 cm from a mirror that has a focal length of -12.0 cm. Determine the image distance and the diameter of the image.

10. A focal point is located 20.0 cm from a convex mirror. An object is placed 12 cm from the mirror. Determine the image distance.