

Mirror Practice Quiz

1. What is the law of reflection?

angle of incidence = angle of reflection!



2. If a light ray hits a flat surface at an angle of 35°, what will be the angle of reflection?

35°

3. What is the difference between specular and diffuse reflection? Explain which allows you to see a reflection.

flat surface → specular
rough surface

4. Describe the difference between concave, convex, and plane mirrors.

→) > (→ |

5. Explain a ray diagram and why it appears that images in plane mirrors are “behind” the mirror.

Ray diagrams show reflections of light rays. When the rays are reflected in different directions, but appear to come from a point behind a mirror, we see a virtual image

6. Define “focal point.” Explain how the focal point in a concave mirror is different than a convex mirror.

point where all light converges or appears to converge
concave - light actually meets there in front of mirror, convex - light appears to converge there

7. What is the difference between a real and virtual image?

real - light actually meets (in front of mirror)
virtual - light appears to meet (behind mirror)

8. A 1.7 m tall man stands 0.30 m in front of a concave mirror with a center of curvature of 0.40 m. Find the distance and height of his image. Is his image real or virtual? Reduced size or enlarged size?

$$\frac{1}{f} = \frac{1}{d_i} + \frac{1}{d_o}$$

$$\frac{1}{.2} = \frac{1}{d_i} + \frac{1}{0.30}$$

$$5 = \frac{1}{d_i} + 3.33$$

$$1.67 = \frac{1}{d_i}$$

$$d_i = 0.599 \text{ m}$$

$$m = \frac{h_i}{h_o} = \frac{-d_i}{d_o}$$

$$\frac{h_i}{1.7} = \frac{-0.599}{0.30}$$

$$h_i = 3.89 \text{ m}$$

enlarged
real

9. The same man as problem 8 stands in front of a convex mirror with a center of curvature of 0.40 m. Find the distance and height of his image. Is his image real or virtual? Reduced size or enlarged size?

$$\frac{1}{f} = \frac{1}{d_i} + \frac{1}{d_o}$$

$$\frac{1}{-.2} = \frac{1}{d_i} + \frac{1}{0.30}$$

$$-5 = \frac{1}{d_i} + 3.33$$

$$-8.33 = \frac{1}{d_i}$$

$$d_i = 0.12 \text{ m virtual}$$

$$m = \frac{h_i}{h_o} = \frac{-d_i}{d_o}$$

$$\frac{h_i}{1.7} = \frac{-0.12}{.30}$$

$h_i = 0.08$
reduced

10. If you use the mirror equation and your image distance is negative, what does this mean? What is the image height is negative?

↓
inverted

↓
behind
mirror