1.) A coin is placed at the bottom of a container filled with water (refractive index = 1.33). If the actual depth of water is 12 cm, what is the apparent depth of the coin as seen from above?

a) 8.5 cm

b) 9.0 cm

c) 10.1 cm

d) 11.3 cm

2.) A convex lens has a power of +4 diopters. What is the focal length of the lens?

a) 25 cm

b) 50 cm

c) 75 cm

d) 100 cm

3.) A concave mirror has a focal length of 20 cm. If an object is placed 30 cm away from the mirror, what is the nature of the image formed?

a) Real, inverted, and smaller

b) Virtual, upright, and magnified

c) Real, inverted, and magnified

d) Virtual, upright, and smaller

4.) An object is placed 10 cm in front of a convex mirror with a focal length of 20 cm. Where will the image be formed?

a) 10 cm behind the mirror

b) 6.67 cm behind the mirror

c) 13.33 cm behind the mirror

d) 5 cm behind the mirror

5.) A convex lens produces an image 4 times the size of the object. If the object is placed 10 cm from the lens, find the distance of the image.

a) 20 cm

b) 30 cm

c) 40 cm

d) 50 cm

6.) When white light passes through a prism, which of the following colors deviates the most?

a) Red

b) Green

c) Yellow

d) Violet

7.) A concave mirror is used to focus sunlight to a point. If the radius of curvature of the mirror is 60 cm, what is the focal length?

a) 15 cm

b) 30 cm

c) 45 cm

d) 60 cm

8.) A convex lens forms a real image twice the size of the object. Where must the object be placed in relation to the focal length?

a) At twice the focal length

b) Between the focal point and the lens

c) At the focal point

d) Between the focal point and twice the focal length

9.) The ratio of the sine of the angle of incidence to the sine of the angle of refraction is constant for two given media. This statement is known as:

a) The Law of Reflection

b) Huygens' Principle

c) Snell's Law

d) Brewster's Law

10.) If the magnification produced by a concave mirror is +2, what can be inferred about the image?

a) The image is real, inverted, and twice the size of the object

b) The image is virtual, upright, and twice the size of the object

c) The image is real, upright, and half the size of the object

d) The image is virtual, inverted, and half the size of the object