Section Summary

16.1 Reflection

- The angle of reflection equals the angle of incidence.
- Plane mirrors and convex mirrors reflect virtual, erect images. Concave mirrors reflect light to form real, inverted images or virtual, erect images, depending on the location of the object.
- Image distance, height, and other characteristics can be calculated using the lens/mirror equation and the magnification equation.

16.2 Refraction

- The index of refraction for a material is given by the speed of light in a vacuum divided by the speed of light in that material.
- Snell's law states the relationship between indices of refraction, the incident angle, and the angle of refraction.
- The critical angle, θ_c, determines whether total internal refraction can take place, and can be calculated according to $\theta_c = sin^{-1}(\frac{n_2}{n_1})$.

16.3 Lenses

- The characteristics of images formed by concave and convex lenses can be predicted using ray tracing. Characteristics include real versus virtual, inverted versus upright, and size.
- The human eye and corrective lenses can be explained using geometric optics.
- Characteristics of images formed by lenses can be calculated using the mirror/lens equation.