

Chapter 26: Geometrical Optics

Summary

This is a chapter where the problems are a lot of PHUN! You can solve many with a ruler and a protractor and then check your answer by using a bit of Algebra. Geometrical optics concerns the reflection and the refraction of light, both of which cause changes in the direction light is moving. The images formed by various types of mirrors and lenses are examined. Rainbows, mirages, and fiber optics are a few of the applications discussed in this chapter.

Major Concepts

By the end of the chapter, students should understand each of the following and be able to demonstrate their understanding in problem applications as well as in conceptual situations.

- Wave fronts and rays
- Reflection and mirrors
 - The law of reflection
 - Plane mirrors
 - Spherical mirrors – concave and convex
 - Ray tracing and the mirror equation
- Refraction and lenses
 - The law of refraction
 - Total internal reflection
 - Reflection and polarization
 - Thin lenses – converging and diverging
 - Ray tracing and the thin-lens equation
- Dispersion and the rainbow

Assignment:

Look at all of the questions.

Make sure you can do the following problems from Ch. 26:

1, 3, 9, 16, 17, 19, 21, 37, 41, 43, 49, 57, 59, 61, 63, 67 & 77

Please Note: Not all of the material is in the text.