

## 1.1: Introduction

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This “book” is not intended to be a vast, definitive treatment of everything that is known about geometric optics. It covers, rather, the geometric optics of first-year students, whom it will either help or confuse yet further, though I hope the former. The part of geometric optics that often causes the most difficulty, particularly in getting the right answer for homework or examination problems, is the vexing matter of sign conventions in lens and mirror calculations. It seems that no matter how hard we try, we always get the sign wrong! This aspect will be dealt with in [Chapter 2](#). The present chapter deals with simpler matters, namely reflection and refraction at a plane surface, except for a brief foray into the geometry of the rainbow. The rainbow, of course, involves refraction by a spherical drop. For the calculation of the radius of the bow, only Snell’s law is needed, but some knowledge of physical optics will be needed for a fuller understanding of some of the material in [Section 1.7](#), which is a little more demanding than the rest of the chapter.

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