SECTION OVERVIEW

2.8: Derivation of the Powers

Up to this point I have defined what is meant by convergence, and I have defined power as the difference between the final and initial convergences. I *asserted without proof* formulas for the powers of a lens, a refracting interface, and a mirror. It is now time to derive them. Remember that in this chapter I am dealing with small angles only (indeed if angles are not small, a point object will not result in a point image) and consequently I am going to assume that any angle is equal to its tangent or to its sine, and I am going to write Snell's law in the form

$$n_1 \sin\theta_1 = n_2 \sin\theta_2 \;\; or \; n_1 \tan\theta_1 = n_2 \tan\theta_2 \;\; or \; n_1\theta_1 = n_2\theta_2$$

as the spirit moves me and at my convenience.

Topic hierarchy

2.8A: Power of a Lens

2.8B: Power of a Refracting Interface

2.8C: Power of a Mirror