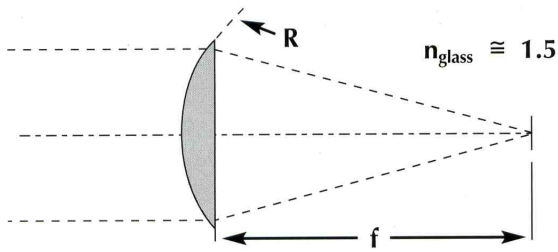
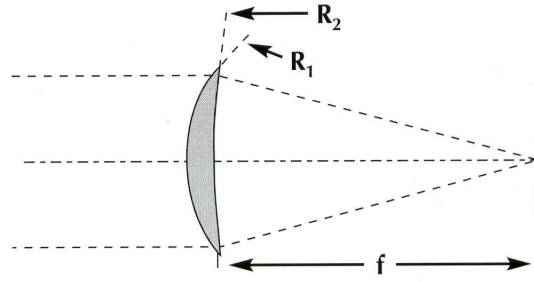


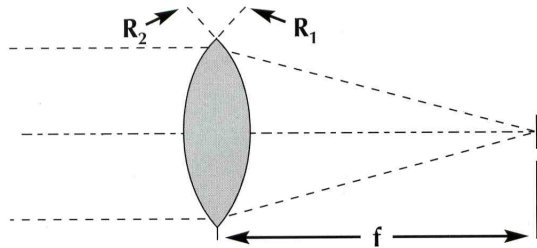
SIMPLE LENS APPROXIMATIONS



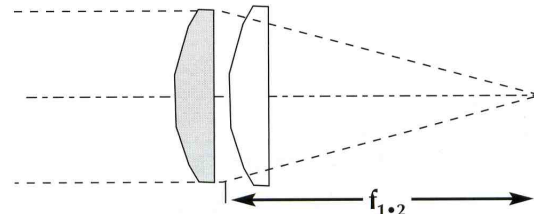
For the plano-convex lens, the focal length equals twice the radius of the convex surface. This is also true for the plano-concave; however, since the radius is negative, this results in a negative focal length: $f = 2R$



For other forms of simple lenses, the following applies (Note: \emptyset = power): $\frac{1}{\text{EFL}} = \emptyset = \frac{1}{2} \left[\frac{1}{R_1} - \frac{1}{R_2} \right]$



For the double-convex or double-concave lens having equal radii, the focal length will equal the radius: $R_1 = R_2 = f$

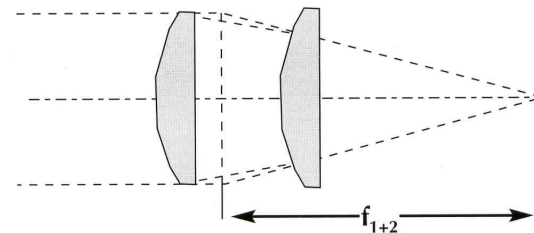


If two or more thin lenses are stacked close together, their powers ($1/\text{EFL}$) may be added:

$$\emptyset_{(1+2)} = \emptyset_1 + \emptyset_2 = f_{(1+2)} = \frac{f_1 \cdot f_2}{f_1 + f_2}$$

If a substantial separation "d" exists between lenses, then:

$$f_{(1+2)} = \frac{f_1 \cdot f_2}{f_1 + f_2 - d}$$



SOURCE: WALKER ASSOCIATES