# Errata for *Optics for Technicians* (PM258), by Max J. Riedl
(first printing only)

p. 17 The values in several equations should be adjusted, as shown below.



Using Eq. (2.6), we find the location of the front principal plane

$$d_1 = -\frac{(n-1)tf}{nR_2} = -\frac{(1.5-1)\times 15 \times 100}{1.5\times(-200)} = 2.5 \text{ mm}.$$

With that, $l = -150 - d_1 = -150 - 2.5 = -152.5$ mm. Equation (2.11) yields

$$l' = \frac{lf}{l+f} = \frac{-152.5\times 100}{-152.5+100} = \frac{-15{,}250}{-52.5} = 290.476 \text{ mm}$$

The magnification is found with Eq. (2.3), i.e., $m = l'/l = 290.476/(-152.5) \cong -1.9$.

The image height, also using Eq. (2.3), is $h' = mh = (-1.9)\times 5 = -9.5\text{mm}$.

To find the distance of the image from the vertex of the rear surface of the lens, we must subtract $d_2$ from $l'$. Using Eqs. (2.7) and (2.11), we obtain

$$l' - d_2 = l' - \frac{(n-1)tf}{nR_1} = 290.476$$
$$- \frac{(1.5-1)\times 15\times 100}{1.5\cdot 65} = 282.78 \text{ mm}$$

## 2.4 Negative Lens, Focal Length, and Back Focal Length

A negative lens has a shape as shown in Fig. 2.4. Since its focal length is negative, the locations of the focal points are in reverse order compared to the positive element, as indicated in Fig. 2.4. By choosing the front radius $R_1 = 60$ mm, rear radius $R_2 = 308.35$ mm, thickness $t = 5$ mm, and again