

G15TINTWO

Two thin lenses, distance between lenses: D

1.First lens, x_{1o} , x_{1i} , f_1 .

$$x_{1o} := -5 \quad f_1 := 6$$
$$x_{1i} := \frac{1}{\left(\frac{1}{f_1}\right) + \frac{1}{x_{1o}}} \quad x_{1i} = -30$$

2.Second lens, x_{2o} , x_{2i} , f_2 , and distance D (a positive number)

$$D := 10 \quad f_2 := 1.85$$

The image distance of the first process is given with respect to the first lens.(Let us assume it is positive)

The object distance must be given with respect to the second lens, taking the distance D between the two lenses into account. (D is negative from the second lens). Therefore we have

$$x_{2o} := -D + x_{1i} \quad x_{2o} = -40$$

$$x_{2i} := \frac{1}{\left(\frac{1}{f_2}\right) + \frac{1}{x_{2o}}} \quad x_{2i} = 1.94$$

3. Magnification for each lens and product for the magnification of the system.

$$m_1 := \frac{x_{1i}}{x_{1o}} \quad m_1 = 6$$

$$m_2 := \frac{x_{2i}}{x_{2o}} \quad m_2 = -0.048$$

$$\text{System} \quad m_1 \cdot m_2 = -0.291$$