

G18MAGIN

Magnifier in the "At Infinity Configuration" Magnification and Angular magnification.

f1 focal length of the magnifier, f2 focal length of the eye.

f1 := 12 Distance between the two lenses is D := 0

1. Step. Determination of xo1 if the virtual image of the first lens is at negative infinity.

$$xi1 := -10^{10} \quad xo1 := \frac{-1}{\left(\frac{1}{f1}\right) - \frac{1}{xi1}} \quad xo1 = -12$$

2. Step. Determination of xi2.

Since xi1 is equal xo2, it is at infinity

$$f2 := 1.852 \quad xo2 := xi1$$
$$xi2 := \frac{1}{\left(\frac{1}{f2}\right) + \frac{1}{xo2}} \quad xi2 = 1.852$$

3. Magnification of Magnifier

$$\text{or} \quad m1 := \frac{xi1}{xo1} \quad m1 = 8.333 \times 10^8$$
$$m1 := 1 - \frac{xi1}{f1} \quad m1 = 8.333 \times 10^8$$

These are meaningless values, therefore we go to the angular magnification $MP = 25/f1$ and have

$$MP = \frac{25}{f1} \quad \frac{25}{f1} = 2.083$$

Such value times x is marked on most microscopes. Our example is 2.08x.