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$$W_{slit} = 2\,\frac{L\lambda}{a}$$

The width of the maxima of the diffraction pattern is

$$W_{grating} = y_{m+1} - y_m$$
$$= (m+1)\frac{L\lambda}{D} - m\frac{L\lambda}{D}$$
$$= \frac{L\lambda}{D}$$

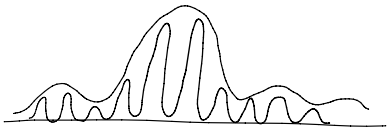
The slit spacing is

$$\frac{1\,mm}{10\,slits} = 10^{-4}\,mm/slit = 100\,\mu m/slit$$

So $D = 10a$

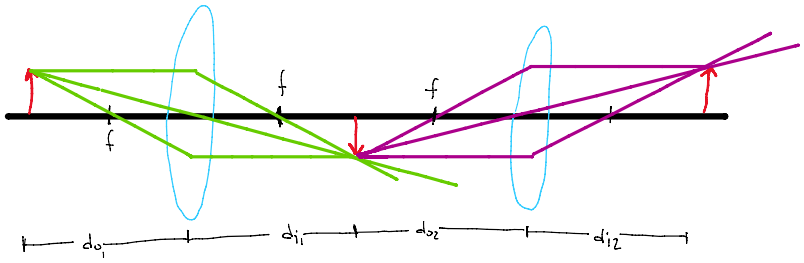
$$W_{indv} = 2\,\frac{L\lambda}{a} \quad \Rightarrow \boxed{W_{indv} = 20\,W_{grating}}$$

$$W_{grating} = \frac{1}{10}\,\frac{L\lambda}{a}$$



Two converging lenses

$$\frac{L\lambda}{D} = \frac{L\lambda}{10a}$$



Start with the first image.

$$\frac{1}{f_1} = \frac{1}{d_{o_1}} + \frac{1}{d_{i_1}} \Rightarrow \frac{1}{10cm} = \frac{1}{60cm} + \frac{1}{d_{i_1}} \Rightarrow d_{i_1} = 12cm$$

The first object is 12cm behind the first lens. The

object distance for the second lens is then

$$L - di_1 = 40\,cm - 12\,cm = 28\,cm$$

Apply lens equation again for second lens

$$\frac{1}{f_2} = \frac{1}{di_2} + \frac{1}{do_2} \Rightarrow \frac{1}{15cm} = \frac{1}{28cm} + \frac{1}{di_2} \Rightarrow \boxed{di_2 = 32.31\,cm}$$

To find magnification, first find mag from first lens

$$m_1 = -\frac{di_1}{do_1} = -\frac{12\,cm}{60\,cm} = -0.2$$

Then apply to the second lens

$$m_2 = -\frac{di_2}{do_2} = \frac{-32.31}{28} = -1.15$$

Then multiply for overall mag

$$m_1 m_2 = (-0.2)(-1.15)$$

$$\boxed{m = 0.23}$$