

$$\frac{1}{f} = \frac{1}{d_o} + \frac{1}{d_i} \quad m = \frac{d_i}{d_o} = \frac{h_i}{h_o}$$

Name: Key

Rules for Ray Tracing with Lenses

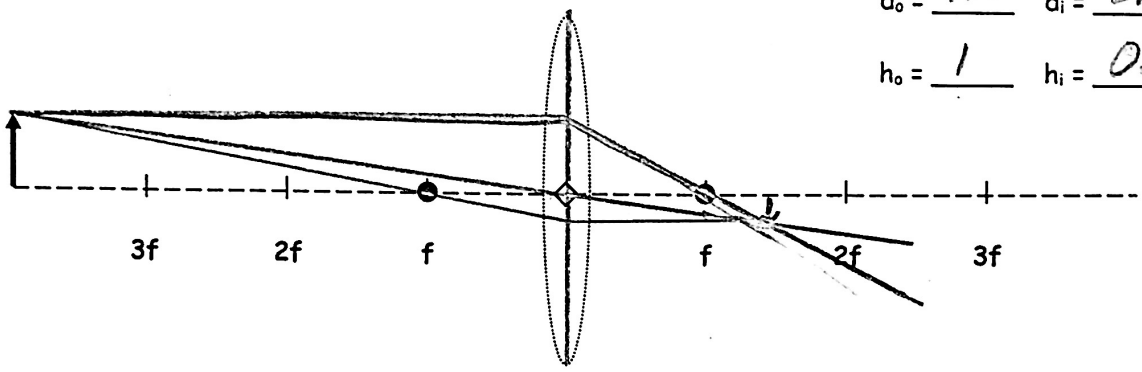
$$f = 1.9 \text{ cm}$$

$$h = 1 \text{ cm}$$

- Rays parallel to the principal axis refract through the focus (f).
- Rays through the focus (f) refract parallel to the principal axis.
- Rays through the center of the lens travel straight through and do not refract.

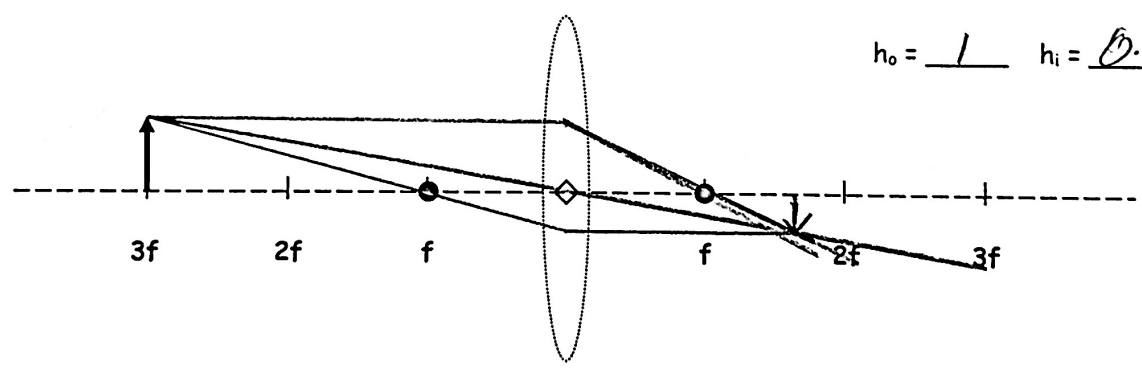
$$d_o = \underline{7.5} \quad d_i = \underline{2.157}$$

$$h_o = \underline{1} \quad h_i = \underline{0.34}$$



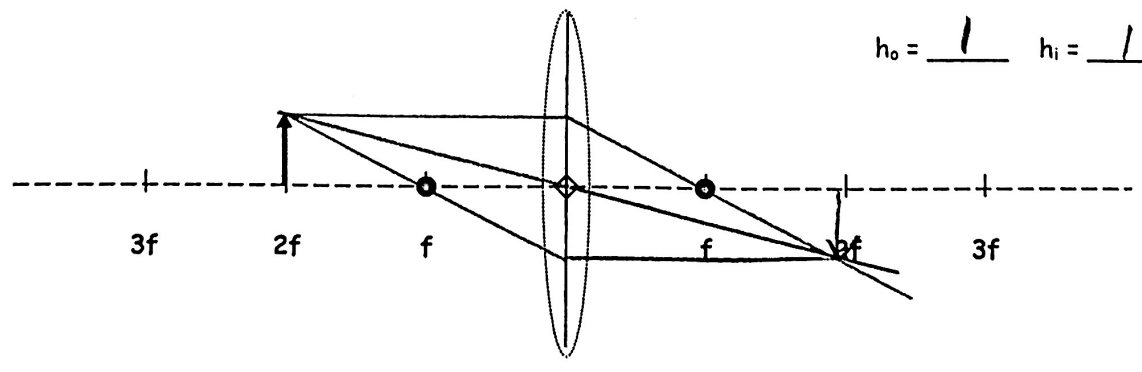
$$d_o = \underline{5.7} \quad d_i = \underline{2.85}$$

$$h_o = \underline{1} \quad h_i = \underline{0.5}$$



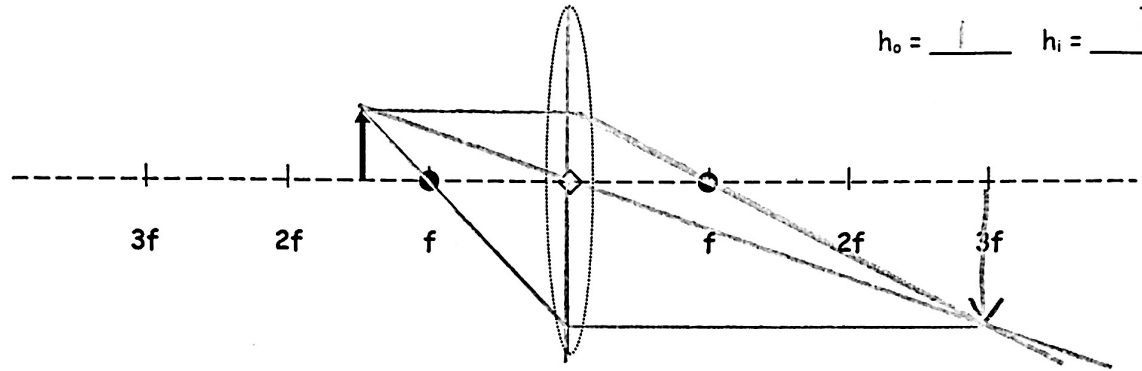
$$d_o = \underline{3.8} \quad d_i = \underline{3.8}$$

$$h_o = \underline{1} \quad h_i = \underline{1}$$



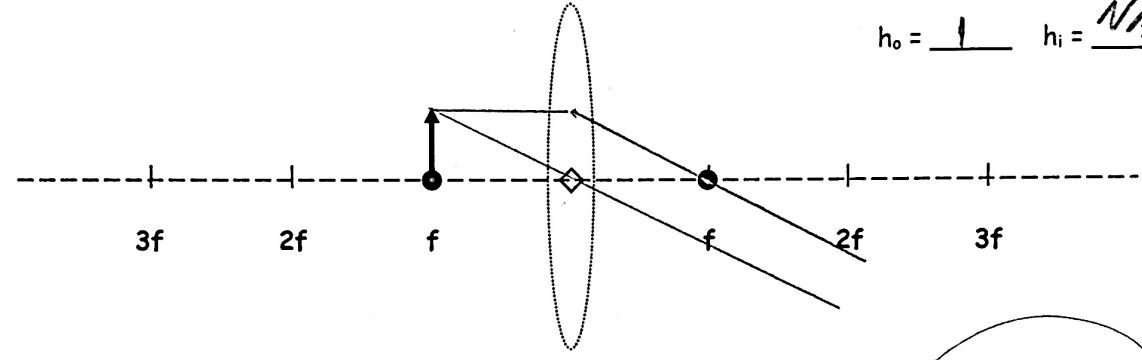
$d_o = 2.25$ $d_i = 5.7$

$h_o = 1$ $h_i = 2$



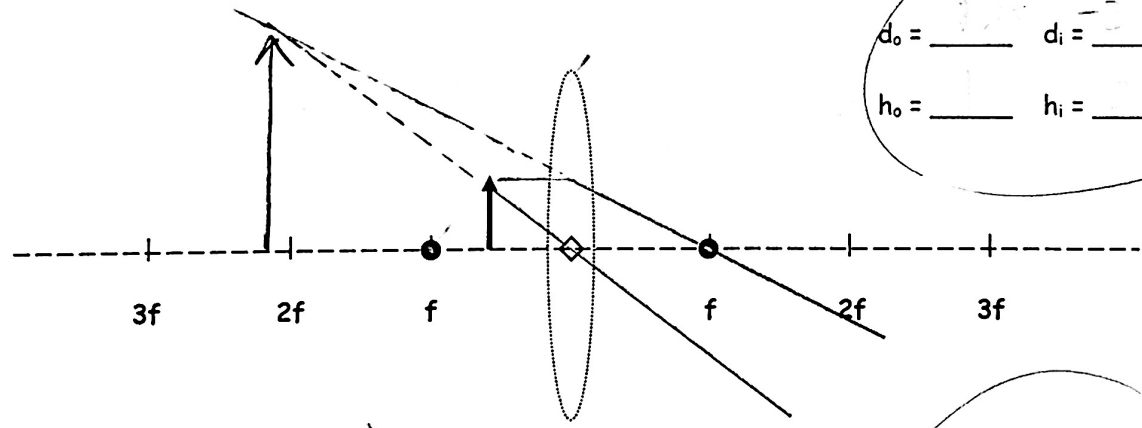
$d_o = 1.9$ $d_i = NA$

$h_o = 1$ $h_i = NA$



$d_o = 2.25$ $d_i = -5.7$

$h_o = 1$ $h_i = 2$



$d_o = 0.9$ $d_i = -1.9$

$h_o = 1$ $h_i = 2$

