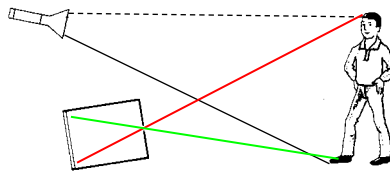
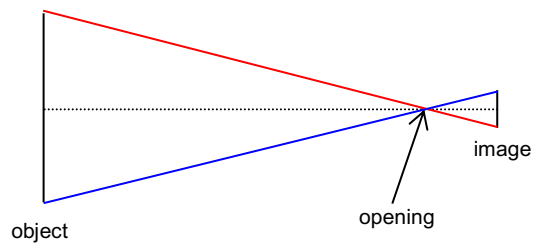


1. The image is upside down



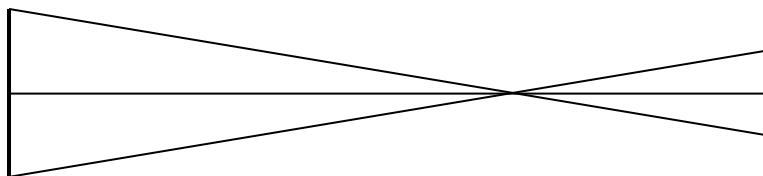
2. a) and b)



c) $d_o = 5.0 \text{ cm}$, $d_i = 1.0 \text{ cm}$, $h_o = 2.5 \text{ cm}$, $h_i = 0.50 \text{ cm}$

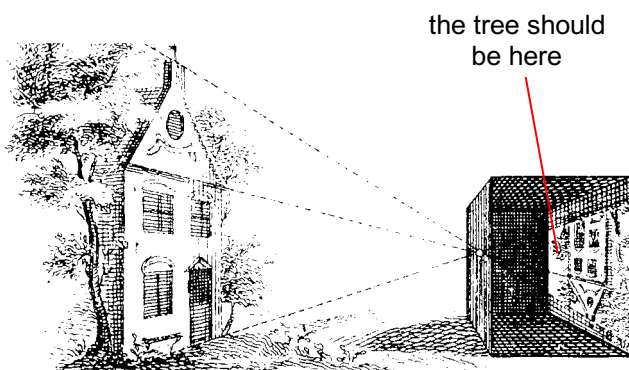
d) $m = \frac{h_i}{h_o} = \frac{1.0 \text{ cm}}{5.0 \text{ cm}} = \underline{0.20}$

- 3.



$h_i = 1.5 \text{ cm}$, $d_i = 4.0 \text{ cm}$, $d_o = 8.0 \text{ cm}$

4. The tree is on the wrong side of the house.



$$5. \quad m = \frac{h_i}{h_o} = \frac{51 \text{ cm}}{17 \text{ cm}} = \underline{\underline{3.0}}$$

$$6. \quad h_i = m \cdot h_o = 0.20 \cdot 1.8 \text{ m} = \underline{\underline{0.36 \text{ m}}} = \underline{\underline{36 \text{ cm}}}$$

$$7. \quad h_o = \frac{h_i}{m} = \frac{5.0 \text{ m}}{2.5} = \underline{\underline{2.0 \text{ m}}}$$

$$8. \quad \text{a) } m = \frac{h_i}{h_o} = \frac{3.40 \text{ cm}}{176 \text{ cm}} = \underline{\underline{0.0193}}$$

$$\text{b) } d_i = \frac{h_i \cdot d_o}{h_o} = \frac{3.40 \text{ cm} \cdot 539 \text{ cm}}{176 \text{ cm}} = \underline{\underline{10.4 \text{ cm}}}$$

$$9. \quad \text{a) } m = \frac{h_i}{h_o} = \frac{5.7 \text{ cm}}{286 \text{ cm}} = \underline{\underline{0.020}}$$

$$\text{b) } d_o = \frac{h_o \cdot d_i}{h_i} = \frac{286 \text{ cm} \cdot 43 \text{ cm}}{5.7 \text{ cm}} = 2158 \text{ cm} = \underline{\underline{22 \text{ m}}}$$

$$10. \quad h_o = \frac{h_i \cdot d_o}{d_i} = \frac{1.80 \text{ m} \cdot 3.40 \text{ m}}{3.80 \text{ m}} = \underline{\underline{1.61 \text{ m}}}$$