

1. Chapter 26, Problem 66a
 A) 3.62 cm, to the right of the second lens
 B) 4.50 cm, to the left of the second lens
 C) 5.22 cm, to the right of the second lens

- D) 5.22 cm, to the left of the second lens
 E) 4.50 cm, to the right of the second lens

2. Chapter 26, Problem 66b
 A) +2.3 B) -3.3 C) -0.75 D) +0.25 E) -3.0

$$m_1 = \frac{-d_{i1}}{d_{o1}} = -3$$

$$m_2 = \frac{-d_{i2}}{d_{o2}} = \frac{-4.5}{-18} = 0.25$$

3. Chapter 26, Problem 66c
 A) virtual B) real

$$m_{\text{Tot}} = m_1 m_2 = -0.75$$

4. Chapter 26, Problem 66e
 A) smaller B) larger

5. Chapter 26, Problem 68
 A) -0.14 mm B) -0.030 mm C) -0.27 mm D) -0.062 mm E) -0.084 mm

$$\frac{h_i}{h_o} = \frac{-d_i}{d_o}$$

$$h_i = 2.0 \text{ mm} (-1.7 \text{ cm} / 25 \text{ cm}) = -0.136 \text{ mm}$$

6. Chapter 26, Problem 74a
 A) 36.6 cm B) 34.0 cm C) 32.6 cm D) 31.3 cm E) 28.4 cm

7. Chapter 26, Problem 92a
 A) 0.760 m B) 0.765 m C) 0.780 m D) 0.775 m E) 0.770 m

8. Chapter 26, Problem 92b
 A) 0.760 m B) 0.765 m C) 0.780 m D) 0.775 m E) 0.770 m

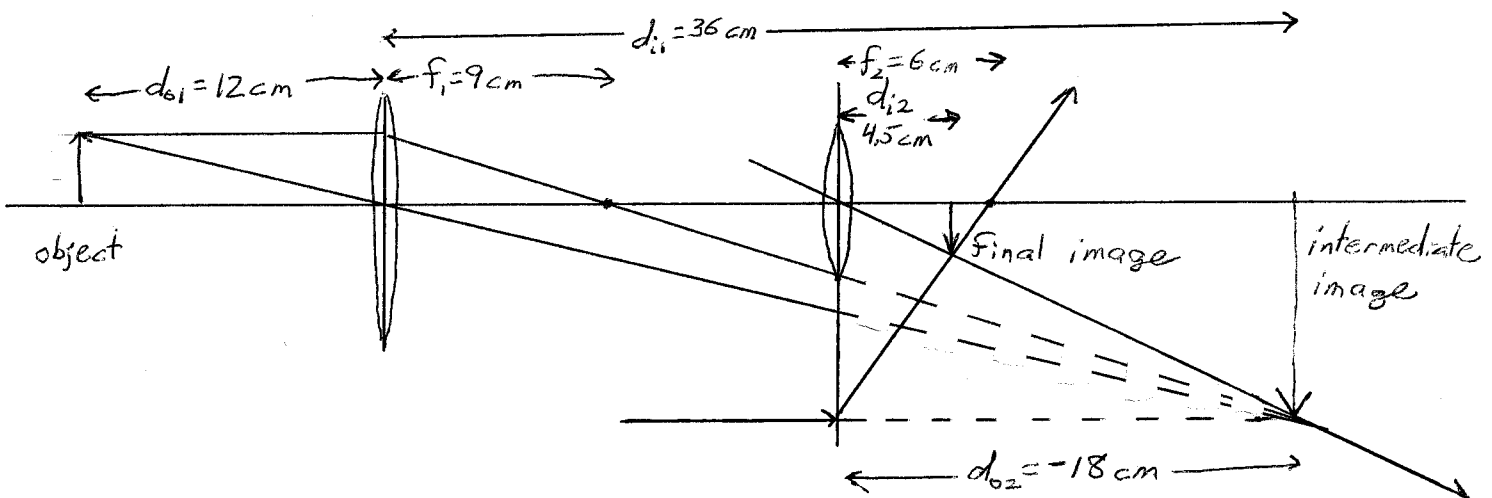


Image from First lens is the object for the second lens.
 Since this object is on the wrong side, its distance is negative.

HW 22 Solutions (cont'd)

6. 26.74a)

For close object: $d_o = 25 \text{ cm}$ $d_i = -79 \text{ cm}$

$$\frac{1}{f} = \frac{1}{25 \text{ cm}} + \frac{1}{-79 \text{ cm}} = 0.0273 \text{ cm}^{-1}$$

$$f = 36.6 \text{ cm}$$

For poster: $d_i = -217 \text{ cm}$ $f = 36.6 \text{ cm}$

$$\frac{1}{d_o} + \frac{1}{d_i} = \frac{1}{f} \quad \frac{1}{d_o} = \frac{1}{f} - \frac{1}{d_i} = \frac{1}{36.6 \text{ cm}} - \frac{1}{-217 \text{ cm}} = 0.0320 \text{ cm}^{-1}$$

$$\boxed{d_o = 31.3 \text{ cm}}$$

7. 26.92 a)

$$M = \frac{-f_o}{f_e} = -155 \quad f_e = 5.00 \text{ mm}$$

$$f_o = -M f_e = -(-155)(5.00 \text{ mm}) = 775 \text{ mm} = 0.775 \text{ m}$$

$$8. \quad b) \quad L = f_o + f_e = 780 \text{ mm} = 0.78 \text{ m}$$