

P #54a

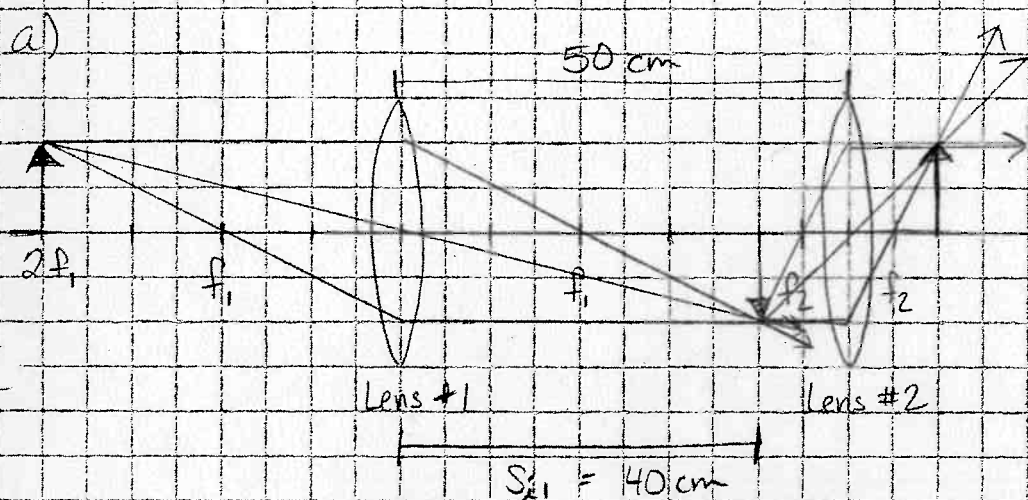
Ch 23 - pg 744

$$f_1 = 20 \text{ cm}$$

$$f_2 = 5 \text{ cm}$$

$$S_{o1} = 40 \text{ cm}$$

$$d \text{ between lenses} = 50 \text{ cm}$$



Lens #1

$$\frac{1}{S_o} + \frac{1}{S_i} = \frac{1}{f}$$

$$\frac{1}{40} + \frac{1}{S_i} = \frac{1}{20}$$

$$S_i^{-1} = 20^{-1} - 40^{-1}$$

$$S_{i1} = 40 \text{ cm}$$

Lens #2

$$S_{o2} = 50 \text{ cm} - 40 \text{ cm} = 10 \text{ cm}$$

$$\frac{1}{S_o} + \frac{1}{S_i} = \frac{1}{f}$$

$$\frac{1}{10} + \frac{1}{S_i} = \frac{1}{5}$$

$$S_i^{-1} = 5^{-1} - 10^{-1}$$

$$S_{i2} = 10 \text{ cm}$$