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HW-13

4. (a) Using lens equation :-

$d_o = 11.6$ cm

$d_i = \infty$

$$\frac{1}{f} = \frac{1}{d_o} + \frac{1}{d_i}$$

$$= \frac{1}{11.6} + \frac{1}{\infty}$$

$f = 11.6$ cm

Using lens equation :-

$$\frac{1}{f} = \frac{1}{d_o} + \frac{1}{d_i}$$

$$\frac{1}{11.6} = \frac{1}{d_o} + \frac{1}{-4.9}$$

$$\frac{1}{d_o} = \frac{1}{11.6} - \left(-\frac{1}{4.9}\right)$$

$$= \frac{1}{11.6} + \frac{1}{4.9}$$

~~$$\left(\right)$$~~

$$= \frac{4.9 + 11.6}{(11.6)(4.9)}$$

$$\frac{1}{d_o} = ~~\text{++++}~~ 0.2902$$

$$\phi_0 = \frac{1}{0.2402}$$

$$= \quad 3.44 \ cm$$