

Physics II
Practice Questions-Answers

7.6

1) $d_o = 100\text{mm} = 0.1\text{m}$

$f = 50\text{mm} = 0.05\text{m}$

$d_i = ?$

$$\frac{1}{0.1} + \frac{1}{d_i} = \frac{1}{0.05}$$

$$\frac{1}{d_i} = \frac{1}{0.05} - \frac{1}{0.1}$$

$$\cancel{d_i} \cdot \frac{1}{\cancel{d_i}} = 10 \cdot d_i$$

$$\boxed{\frac{1}{10}\text{m} = d_i}$$

2) $d_i = 60\text{mm}$

$d_o = 30\text{mm}$

$$\frac{1}{60} + \frac{1}{30} = \frac{1}{f}$$

$$\frac{1}{60} + \frac{2}{60} = \frac{1}{f}$$

$$\frac{3}{60} = \frac{1}{f}$$

$$\frac{1}{20} = \frac{1}{f}$$

$$\boxed{20\text{mm} = f}$$

3) $d_o = 25\text{cm}$
 $f = 50\text{cm}$
 $d_i = ?$

$$\frac{1}{25} + \frac{1}{d_i} = \frac{1}{50}$$

$$\frac{1}{d_i} = \frac{1}{50} - \frac{1}{25}$$

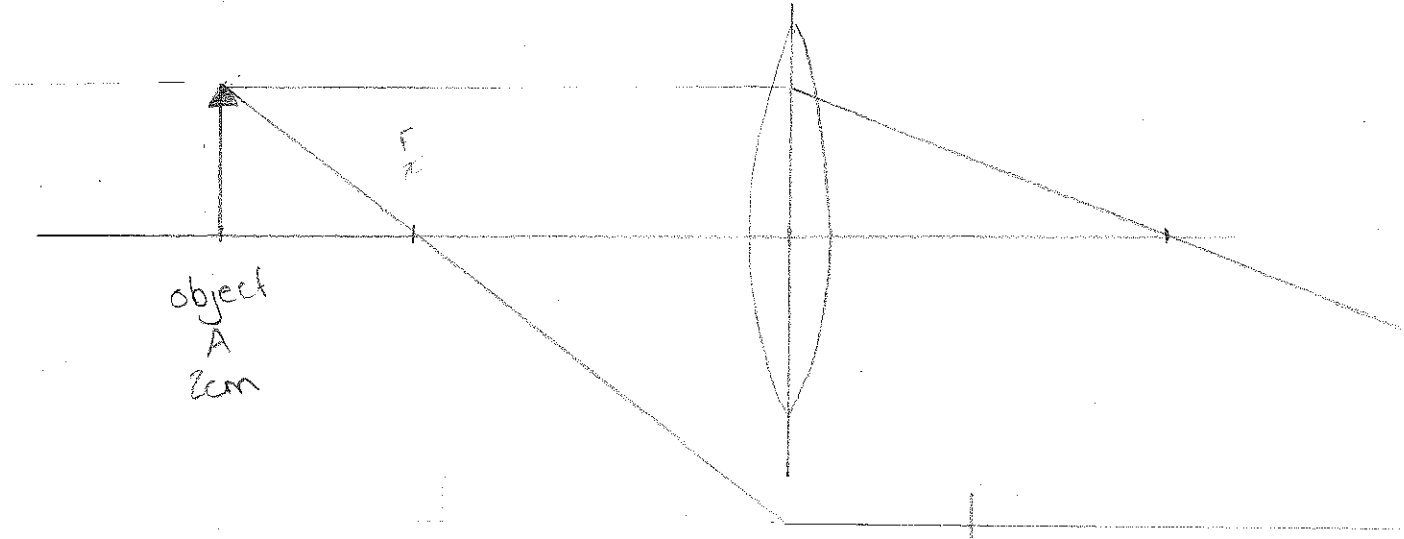
$$\frac{1}{d_i} = \frac{1}{50} - \frac{2}{50}$$

$$\frac{1}{d_i} = -\frac{1}{50}$$

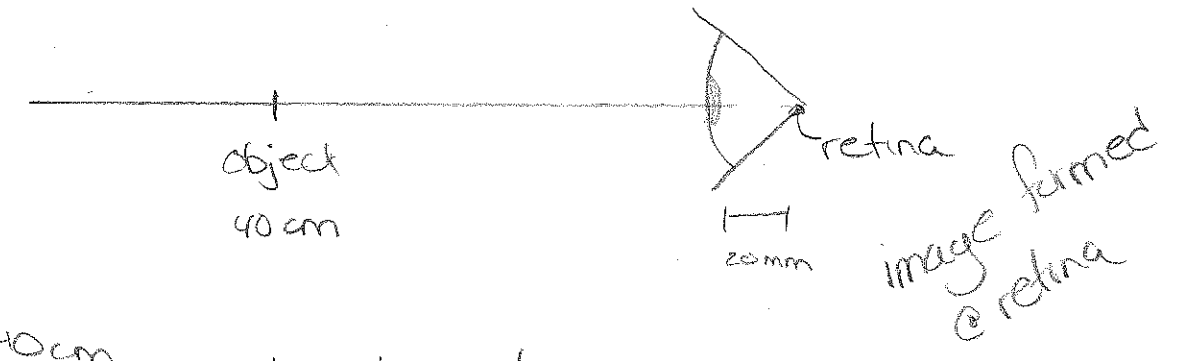
$$\boxed{-50\text{cm} = d_i}$$

* virtual image

~~3)~~



4)



$d_o = 40\text{cm}$
 $d_i = 42\text{cm}$

$40\text{cm} + 20\text{mm}$

$$\frac{1}{40} + \frac{1}{42} = \frac{1}{f}$$

$$\frac{41}{840} = \frac{1}{f}$$

(41) $f = 840$

$f = 840 \div 41$

$$\boxed{f = 20.5\text{cm}}$$

