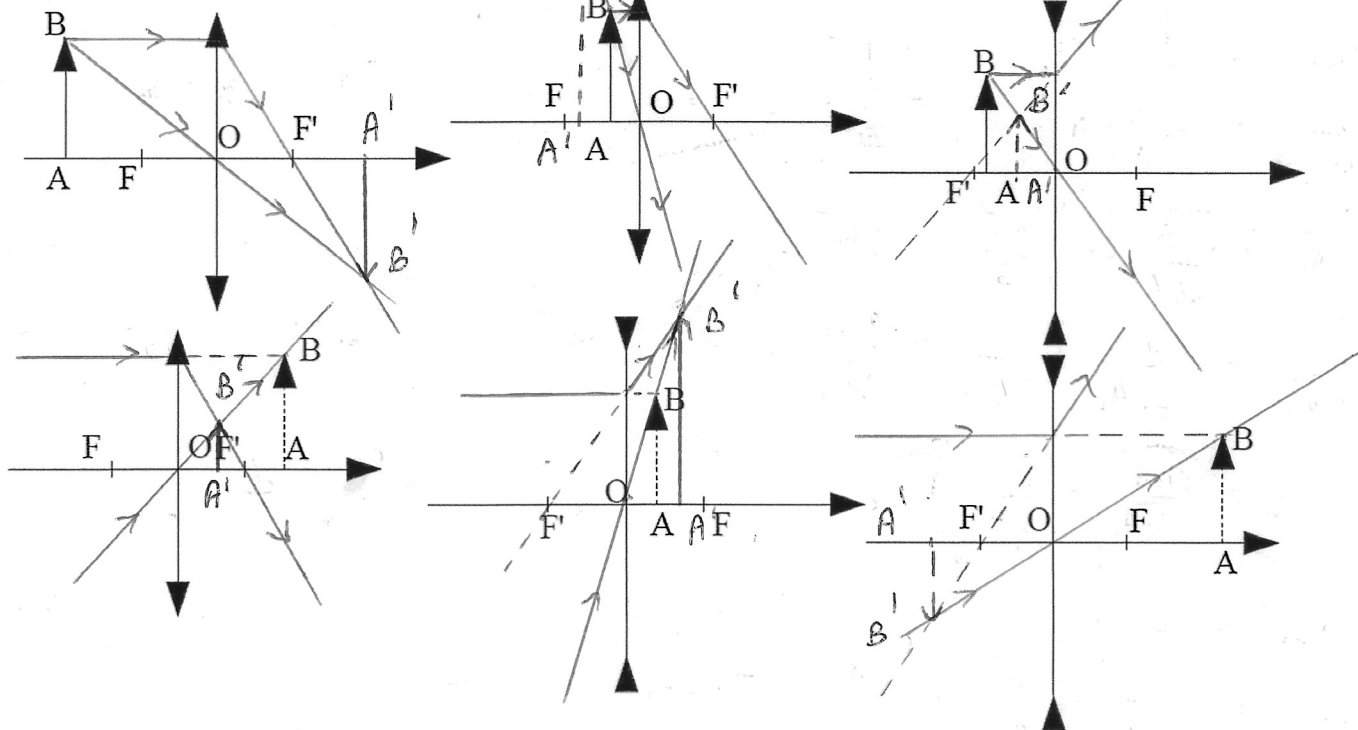
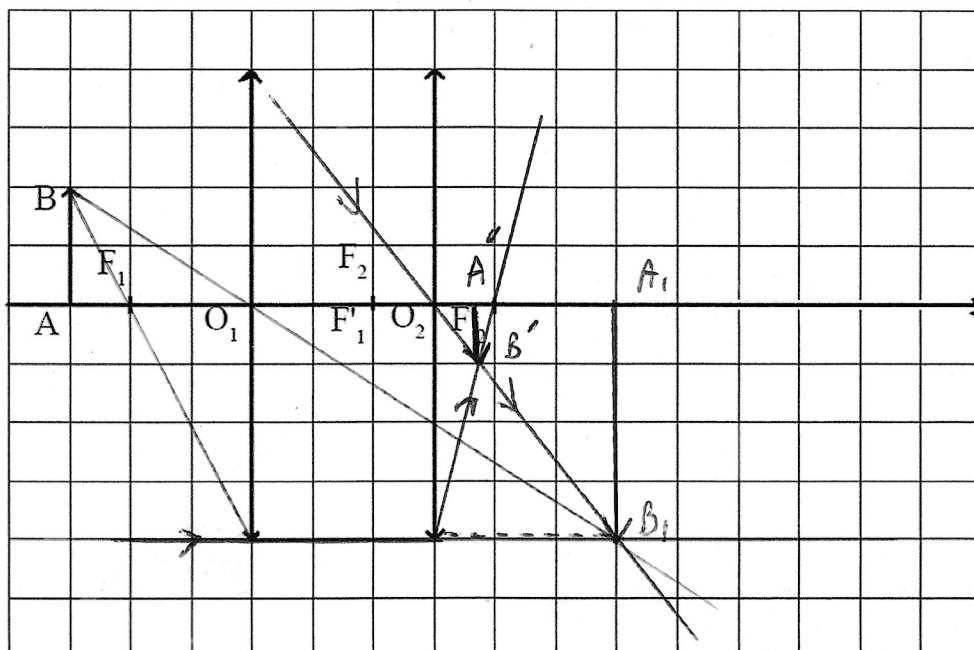
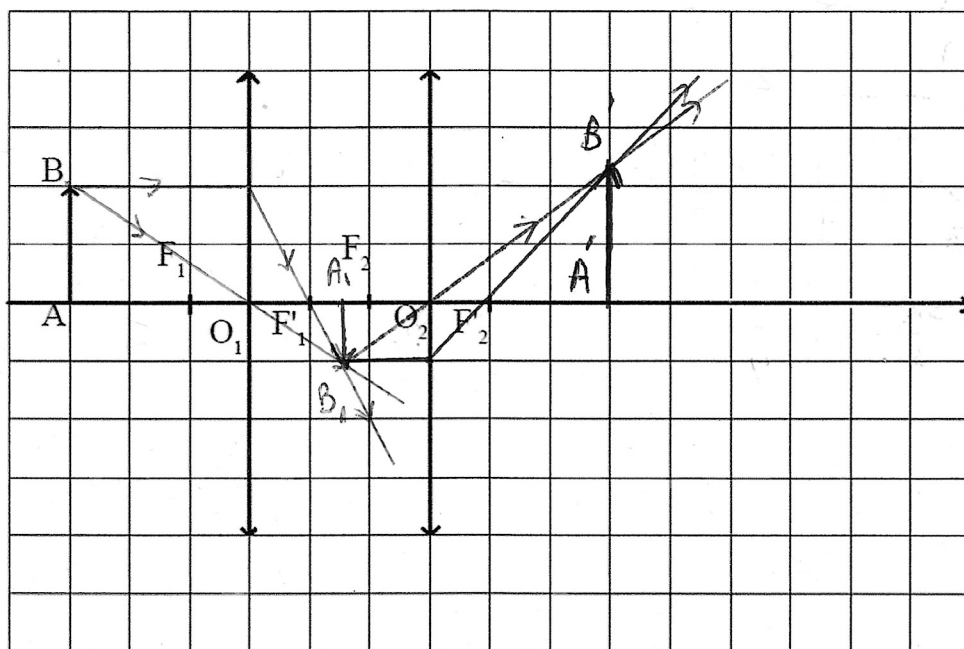


Application 1

: Pour tous les schémas ci-dessous, construire l'image de AB par le système optique

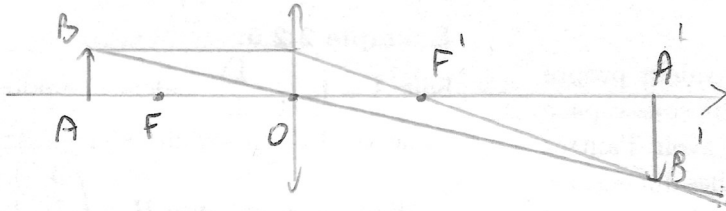


Correction
Applications
Chapitre P5



Application 2

a)



$$b) \frac{1}{p'} - \frac{1}{p} = \frac{1}{f'} \text{ avec } p = \overline{OA} < 0 \text{ et } p' = \overline{OA'} > 0$$

$$\text{d'où } \frac{1}{p'} = \frac{p - p'}{pp'} \Rightarrow f' = \frac{pp'}{p - p'} = \frac{(-26,3) \times 500}{-26,3 - 500} = \underline{25 \text{ cm}}$$

$$c) \frac{\overline{A'B'}}{\overline{AB}} = \frac{\overline{OA'}}{\overline{OA}} \Rightarrow \overline{A'B'} = \frac{\overline{OA'}}{\overline{OA}} \times \overline{AB} = \frac{500}{-26,3} \times 4,0 = \underline{-76 \text{ cm}}$$

d) Il faut faire une mise au point en déplaçant la lentille de façon à obtenir une image nette à l'écran.

$$\frac{1}{p} = \frac{1}{p'} - \frac{1}{f'} = \frac{1}{6,0} - \frac{1}{0,25} = \frac{1}{6} - 4 = -\frac{23}{6} \Rightarrow p = -\frac{6}{23} \text{ m}$$

$$\Rightarrow p = \underline{-26,1 \text{ cm}} \text{ et } \overline{A'B'} = \frac{600}{-26,1} \times 4,0 = \underline{-92 \text{ cm}}$$

Application 3

Situation 1: $A \xrightarrow{L_1} A_1 \xrightarrow{L_2} A'$

$$\frac{1}{\overline{O_1 A_1}} = \frac{1}{\overline{O_1 A}} + \frac{1}{p_1'} = \frac{1}{-3} + \frac{1}{1} = \frac{2}{3} \text{ carneau} \Rightarrow \underline{\overline{O_1 A_1} = 1,5 \text{ carneau}}$$

$$\frac{1}{\overline{O_2 A'}} = \frac{1}{\overline{O_2 A_1}} + \frac{1}{p_2'} = \frac{1}{-1,5} + 1 = \frac{1}{3} \text{ carneau} \Rightarrow \underline{\overline{O_2 A'} = 3 \text{ carneau}}$$

$$\gamma_1 = \frac{\overline{O_1 A_1}}{\overline{O_1 A}} = \frac{1,5}{-3} = -0,5; \gamma_2 = \frac{\overline{O_2 A'}}{\overline{O_2 A_1}} = \frac{3}{-1,5} = -2$$

$$\gamma = \frac{\overline{A'B'}}{\overline{AB}} = \frac{\overline{A_1 B'}}{\overline{A_1 B_1}} \times \frac{\overline{A_1 B_1}}{\overline{AB}} = \gamma_2 \times \gamma_1 = 1 \Rightarrow \underline{\overline{A'B'} = \overline{AB} = 1 \text{ carneau}}$$

$$\text{Situation 2: } \frac{1}{\overline{O_1 A_1}} = \frac{1}{-3} + \frac{1}{2} = \frac{1}{6} \Rightarrow \underline{\overline{O_1 A_1} = 6 \text{ carneau}}$$

$$\frac{1}{\overline{O_2 A'}} = \frac{1}{3} + \frac{1}{1} = \frac{4}{3} \Rightarrow \underline{\overline{O_2 A'} = \frac{3}{4} = 0,75 \text{ carneau}}$$

$$\gamma_1 = \frac{6}{-3} = -2; \gamma_2 = \frac{3/4}{3} = \frac{1}{4} \Rightarrow \gamma = \gamma_1 \times \gamma_2 = -\frac{1}{2}$$

$$\text{d'où } \underline{\overline{A'B} = -\frac{1}{2} \overline{AB} = -1 \text{ carneau}}$$