

Corrigé type d'examen

Physique appliquée

Exe 01

$$1) \delta = \frac{1}{f'} \Rightarrow f' = \frac{1}{\delta} = \frac{1}{0,2} = 0,05 \text{ m} = 5 \text{ cm} \quad (1)$$

$$\frac{1}{\overline{OA'}} - \frac{1}{\overline{OA}} = \frac{1}{f'}$$

$$\overline{OA'} = \frac{\overline{OA} \times f'}{\overline{OA} + f'} = \frac{-4 \times 5}{-4 + 5}$$

$$= -20 \text{ cm} \quad (2)$$

$$\frac{\overline{A'B'}}{\overline{AB}} = \frac{\overline{OA'}}{\overline{OA}} \Rightarrow \overline{A'B'}$$

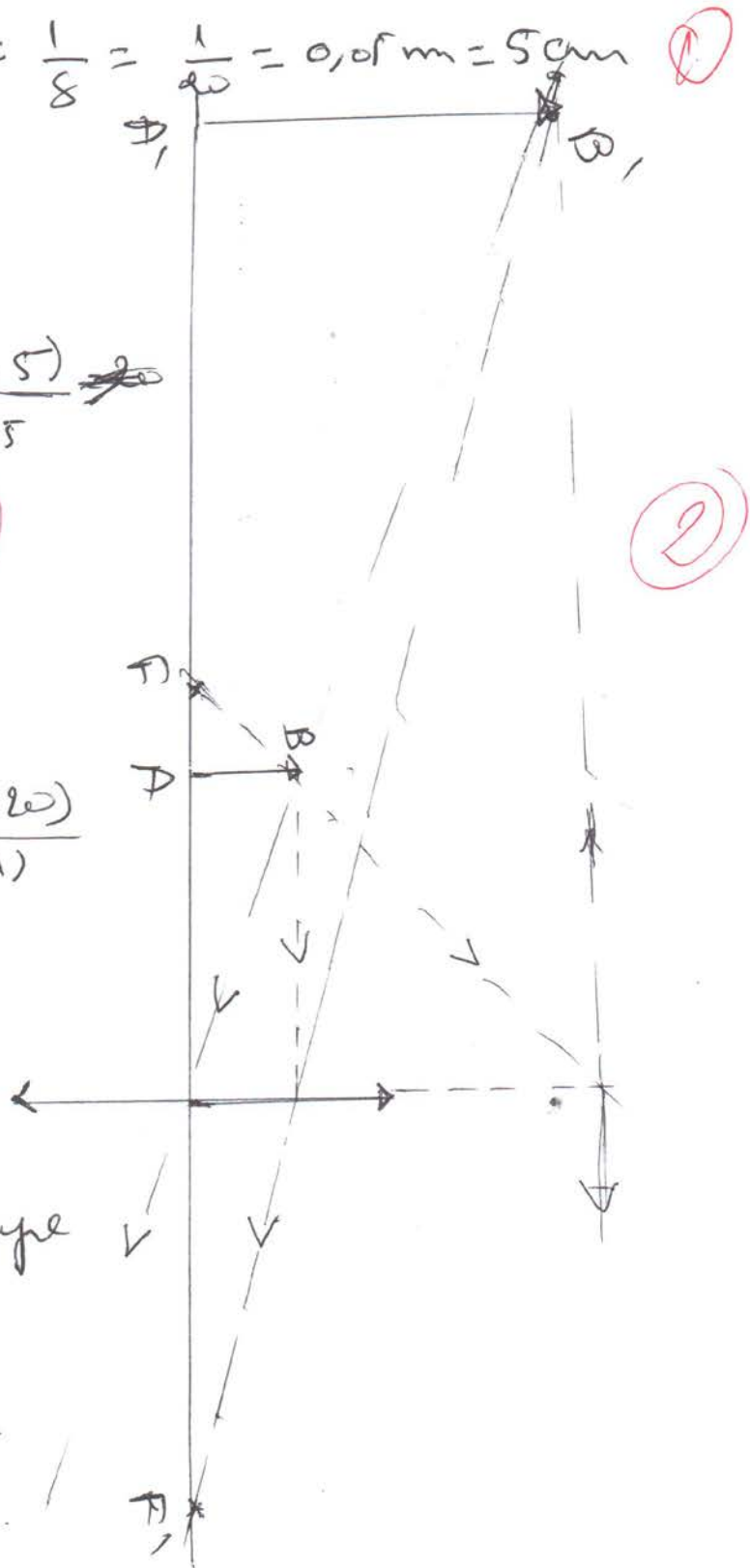
$$\overline{A'B'} = \frac{\overline{AB} \times \overline{OA'}}{\overline{OA}} = \frac{2 \times (-20)}{-4}$$

$$= 10 \text{ cm} \quad (3)$$

$$\therefore \frac{\overline{A'B'}}{\overline{AB}} = \frac{10}{2} = 5 \quad (4)$$

La lentille est une loupe

dans ce cas (5)



Ex 2

la loi de Beer-Lambert

1) $A = \epsilon c l$: A : absorbance.

ϵ : coefficient d'absorption
moléculaire $\text{cm}^{-1} \times \text{mol}^{-1}$

2) C : concentration de la
substance absorbante mol/l

l : trajet optique. (cm)

$$2) A = \epsilon c l \Rightarrow c = \frac{A}{\epsilon l} = \frac{1,8}{4500 \times 1} = 4 \times 10^{-4} \text{ mol/l}$$

$$3) C_0 V_0 = C \times V \Rightarrow C_0 = \frac{C \cdot V}{V_0} = \frac{4 \times 10^{-4} \times 100}{50}$$
$$C_0 = 8 \times 10^{-3} \text{ mol/l}$$

Ex 3

$$1) D_1: P_1 = V I_1 \cos \varphi_1 = 230 \times 5 \times 0,8 = 920 \text{ Watt}$$

$$Q_1 = V I_1 \sin \varphi_1 = 230 \times 5 \times 0,6 = 690 \text{ VAR}$$

$$D_2: P_2 = V I_2 \cos \varphi_2 = 230 \times 10 \times 0,7 = 1610 \text{ Watt}$$

$$Q_2 = V I_2 \sin \varphi_2 = 230 \times 10 \times 0,71 = 1633 \text{ VAR}$$

$$2) P_T = P_1 + P_2 = 920 + 1610 = 2530 \text{ Watt}$$

$$Q_T = Q_1 + Q_2 = 690 + 1633 = 2323 \text{ VAR}$$

$$3) S_T = \sqrt{P_T^2 + Q_T^2} = 3434,71 \text{ VA}$$

$$S_T = V I \Rightarrow I = \frac{S_T}{V} = 14,93 \text{ A}$$