

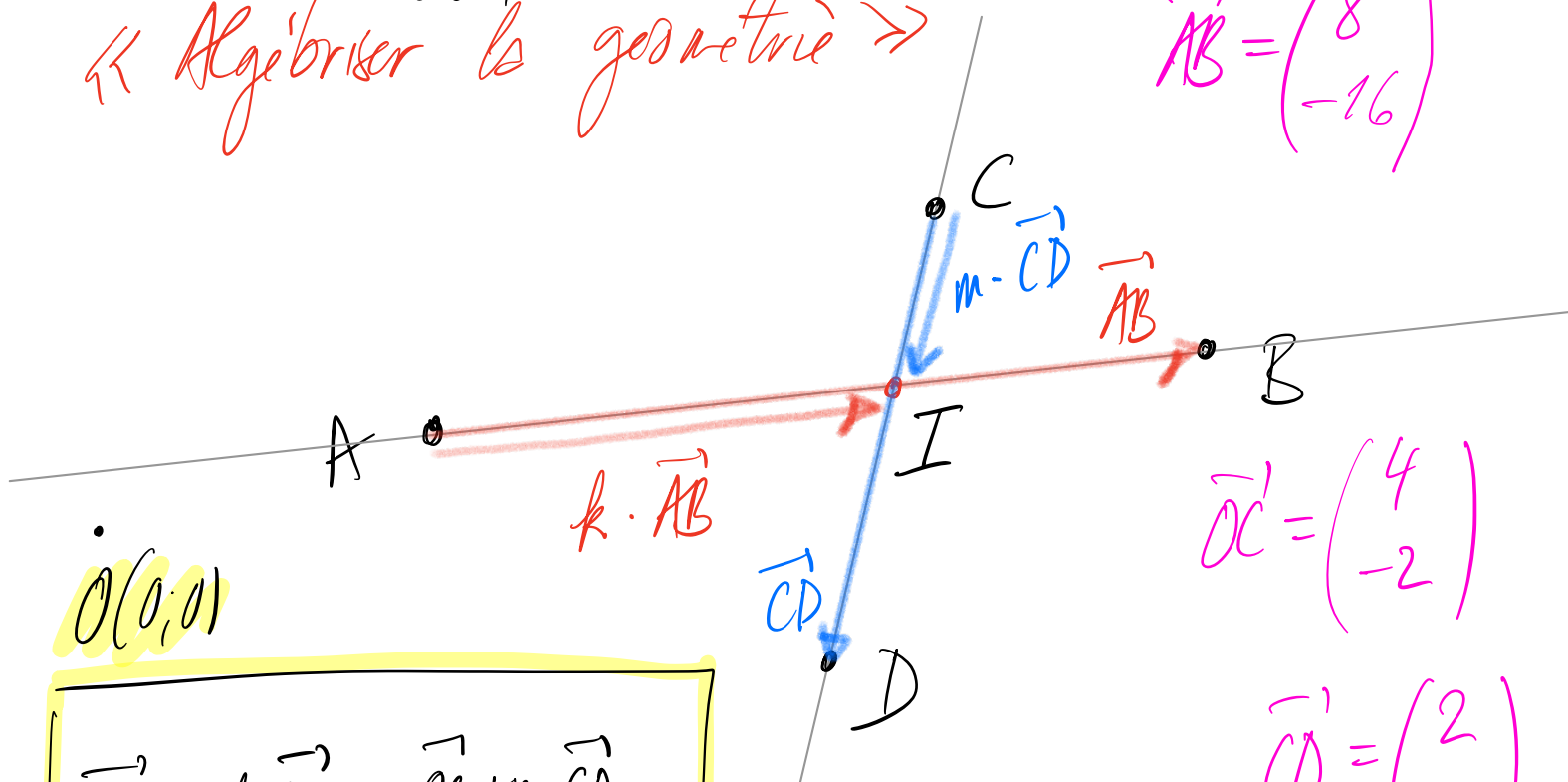
1.3.15

A(-2; 14) B(6; -2) C(4; -2) D(6; 10)

O(0; 0)

« Algèbre & géométrie »

$$\vec{AB} = \begin{pmatrix} 8 \\ -16 \end{pmatrix}$$



O(0; 0)

$$\vec{OA} + k \vec{AB} = \vec{OC} + m \vec{CD} = \vec{OI}$$

système d'équations

$$\vec{OC} = \begin{pmatrix} 4 \\ -2 \end{pmatrix}$$

$$\vec{CD} = \begin{pmatrix} 2 \\ 12 \end{pmatrix}$$

$$\begin{pmatrix} -2 \\ 14 \end{pmatrix} + k \cdot \begin{pmatrix} 8 \\ -16 \end{pmatrix} = \begin{pmatrix} 4 \\ -2 \end{pmatrix} + m \begin{pmatrix} 2 \\ 12 \end{pmatrix}$$

$$\begin{cases} -2 + 8k = 4 + 2m \\ 14 - 16k = -2 + 12m \end{cases}$$

$$\begin{cases} 8k - 2m = 6 & \cdot 2 \\ -16k - 12m = -16 & \cdot 1 \end{cases}$$

$$\begin{cases} 16k - 4m = 12 & (L_1) \\ -16k - 12m = -16 & (L_2) \end{cases}$$

$$L_1 + L_2: -16m = -4$$

$$m = \frac{1}{4} = 0,25$$

$$16k - 4(0,25) = 12$$

$$16k = 12 + 1 = 13$$

$$k = \frac{13}{16}$$

$$\vec{OI} = \begin{pmatrix} 4 \\ -2 \end{pmatrix} + 0,25 \cdot \begin{pmatrix} 2 \\ 12 \end{pmatrix} = \begin{pmatrix} 4,5 \\ 1 \end{pmatrix} = \vec{OI}$$

Verify

$$\vec{OI} = \begin{pmatrix} -2 \\ 14 \end{pmatrix} + \frac{13}{16} \begin{pmatrix} 8 \\ -16 \end{pmatrix} = \begin{pmatrix} -2 + \frac{13}{2} \\ 14 - 13 \end{pmatrix}$$

$$= \begin{pmatrix} -2 + 6,5 \\ 1 \end{pmatrix} = \begin{pmatrix} 4,5 \\ 1 \end{pmatrix}$$

4.3.2

$$b) \begin{pmatrix} m \\ m+4 \end{pmatrix} \begin{pmatrix} 3 \\ m-1 \end{pmatrix}$$

m tq. les vect. sont colin.

$$\begin{pmatrix} m \\ m+4 \end{pmatrix} = k \begin{pmatrix} 3 \\ m-1 \end{pmatrix}$$

Stratégie n° 1

$$\begin{vmatrix} m & 3 \\ m+4 & m-1 \end{vmatrix}$$

Stratégie n° 2 (det.)

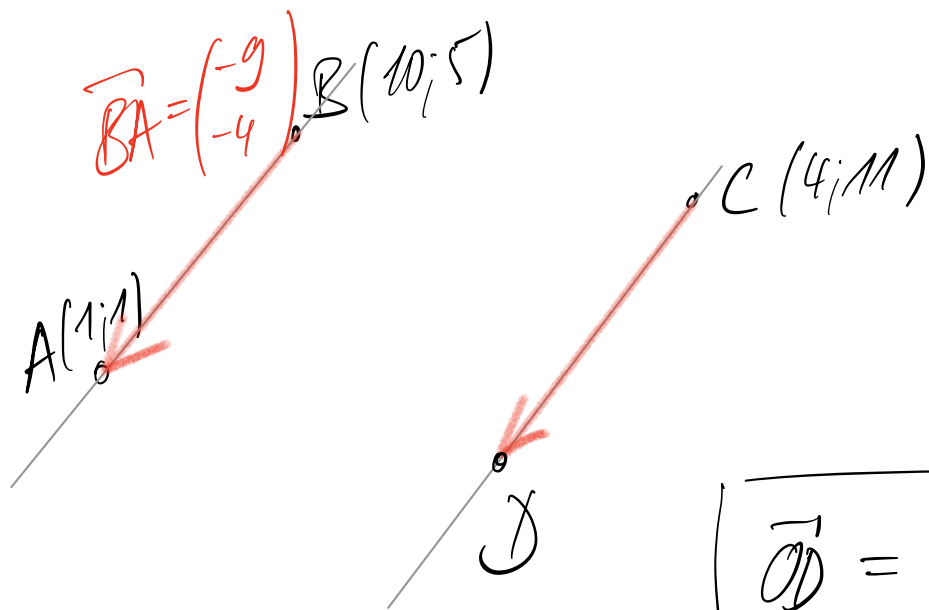
$$= m(m-1) - (m+4) \cdot 3$$

$$= m^2 - m - 3m - 12 = 0$$

$$\Leftrightarrow m^2 - 4m - 12 = 0$$

donne les 2 valeurs de m .

1.3.8



$$\begin{aligned} \vec{AD} &= \vec{AC} + \vec{BA} \\ &= \vec{AC} + \underbrace{\vec{CD}}_{\vec{BA}} \end{aligned}$$