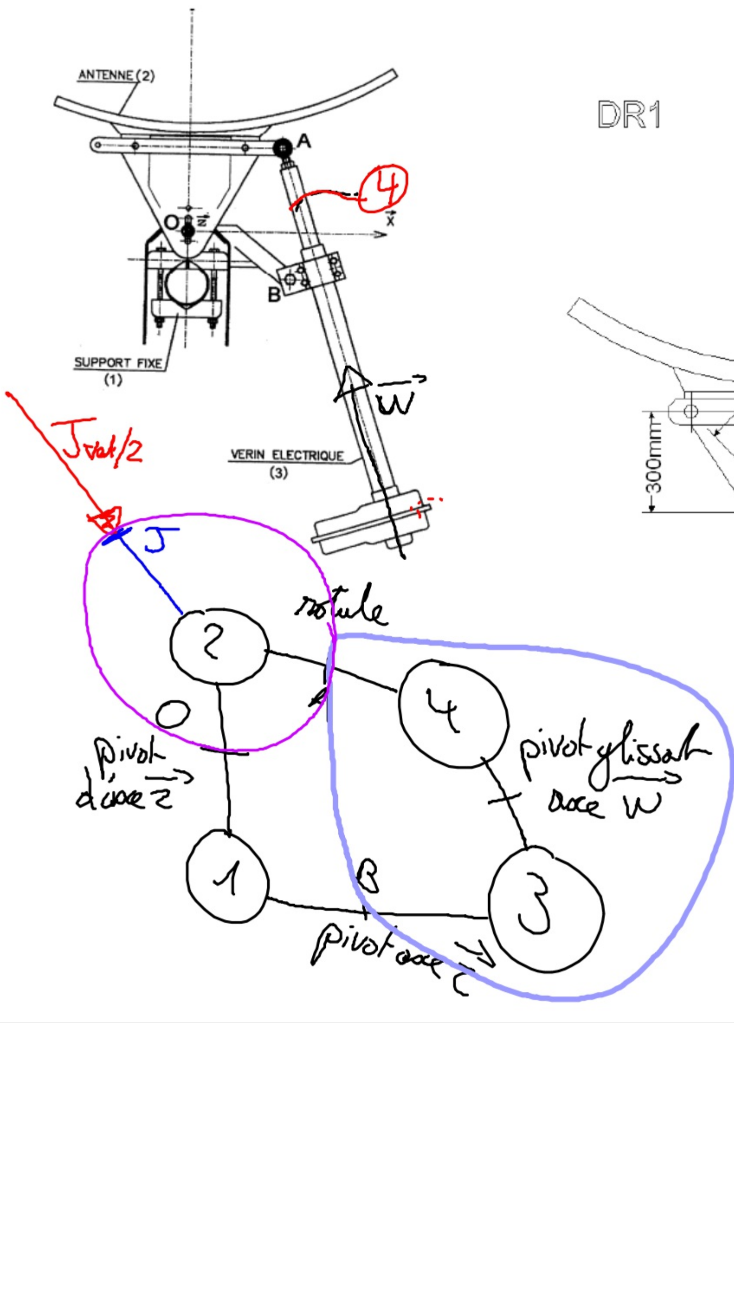
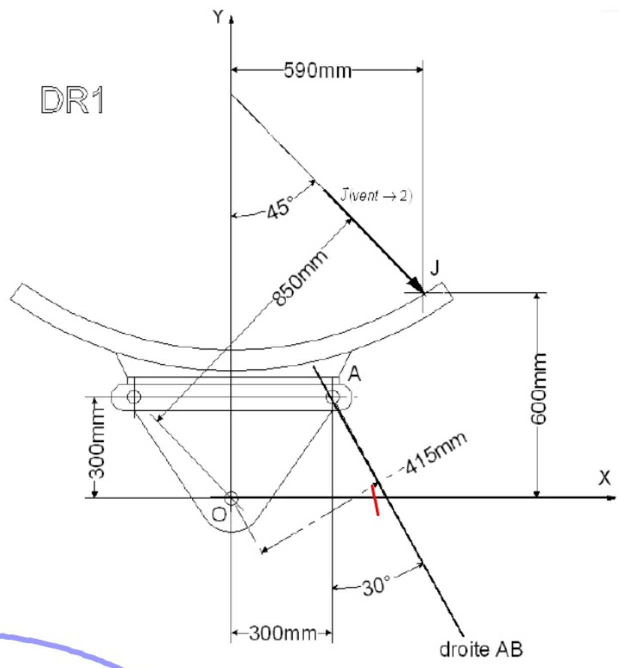

ANTENNE (2)
A
O
B
SUPPORT FIXE (1)
VERIN ELECTRIQUE (3)
4
W
J
rotule
2
4
O
pivot d'axe z
pivot glissant axe W
1
B
3
pivot axe z


DR1
Y
590mm
45°
J(vent → 2)
J
850mm
A
300mm
600mm
415mm
X
O
30°
300mm
droite AB

1) On isole {3+4}

BAME

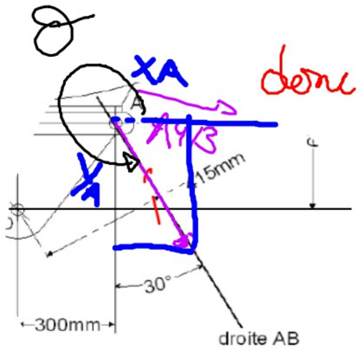
$$\left\{\mathcal{T}_{2/4}\right\} = {}_A\left\{\begin{array}{c|c} X_A & 0 \\ Y_A & 0 \\ \cancel{Z_A}\,0 & 0 \end{array}\right\}$$

$$\left\{\mathcal{T}_{1/3}\right\} = {}_B\left\{\begin{array}{c|c} X_B & \cancel{L_B}\,0 \\ Y_B & \cancel{M_B}\,0 \\ \cancel{Z_B}\,0 & 0 \end{array}\right\}$$

$\Rightarrow$ solide soumis à 2 forces

$\Rightarrow$ $\overrightarrow{A_{4/3}}$ et $\overrightarrow{B_{1/3}}$ ont m̂ direction, m̂ norme et sens opposé

donc la direction est la droite (AB)



$$X_A = \|\overrightarrow{A_{2/4}}\| \cos 300$$

$$Y_A = \|\overrightarrow{A_{2/4}}\| \sin 300$$

$$\frac{Y_A}{X_A} = \frac{\sin 300}{\cos 300} = \tan 300$$

2) Isoler $\{2\}$

$$\left\{\mathcal{T}_{1/2}\right\} = {}_{O}\left\{\begin{array}{c|c} X_O & \cancel{L_O}\ 0 \\ Y_O & \cancel{M_O}\ 0 \\ \cancel{Z_O}\ 0 & 0 \end{array}\right\}$$

$$\left\{\mathcal{T}_{vent/2}\right\} = {}_{J}\left\{\begin{array}{c|c} 990 & 0 \\ -990 & 0 \\ 0 & 0 \end{array}\right\}$$

$$\left\{\mathcal{T}_{4/2}\right\} = -\left\{\mathcal{T}_{2/4}\right\} = {}_{A}\left\{\begin{array}{c|c} -X_A & 0 \\ -Y_A & 0 \\ 0 & 0 \end{array}\right\}$$

<u>en O</u>

$$\bullet\quad \left\{\tau_{vat/2}\right\} = \left\{ \begin{matrix} \overrightarrow{J_{vat/2}} \\ \overrightarrow{M_J} + \overrightarrow{OJ} \wedge \overrightarrow{J_{vat/2}} \end{matrix} \right\}_O$$

$$\overrightarrow{OJ} \wedge \overrightarrow{J_{vat/2}} = \begin{pmatrix} 0,59 \\ 0,6 \\ 0 \end{pmatrix} \wedge \begin{pmatrix} 990 \\ -990 \\ 0 \end{pmatrix}$$

$$\left\{\tau_{vat/2}\right\} = \left\{ \begin{matrix} 990 & 0 \\ -990 & 0 \\ 0 & -1178 \end{matrix} \right\}_O \qquad = \begin{pmatrix} 0 \\ 0 \\ 0,59 \times -990 - 0,6 \times 990 \end{pmatrix}$$

$$\bullet\quad \left\{\tau_{4/2}\right\} = \left\{ \begin{matrix} -X_A \\ -Y_A \\ 0 \end{matrix} \;\middle|\; \begin{matrix} 0,3 \\ 0,3 \\ 0 \end{matrix} \wedge \begin{matrix} -X_A \\ -Y_A \\ 0 \end{matrix} \right\}_O = \left\{ \begin{matrix} -X_A & 0 \\ -Y_A & 0 \\ 0 & -0,3Y_A + 0,3X_A \end{matrix} \right\}_O$$

$$\left\{\mathcal{T}_{4/12}\right\} + \left\{\mathcal{T}_{vet/12}\right\} + \left\{\mathcal{T}_{1/2}\right\} = \left\{0\right\}$$

$$_{O}\left\{\begin{array}{c|c} -X_A & 0 \\ -Y_A & 0 \\ 0 & -0{,}3Y_A + 0{,}3X_A \end{array}\right\} + {}_{O}\left\{\begin{array}{c|c} 990 & 0 \\ -990 & 0 \\ 0 & -1178 \end{array}\right\} + {}_{O}\left\{\begin{array}{c|c} X_O & 0 \\ Y_O & 0 \\ 0 & 0 \end{array}\right\} = \left\{\begin{array}{c|c} 0 & 0 \\ 0 & 0 \\ 0 & 0 \end{array}\right\}$$

$$\begin{cases} -X_A + 990 + X_O = 0 \\ -Y_A - 990 + Y_O = 0 \\ -0{,}3Y_A + 0{,}3X_A - 1178 = 0 \\ + \dfrac{Y_A}{X_A} = \tan 300 \end{cases}$$

$Y_A = X_A \tan 300$

$-0{,}3X_A \tan 300 + 0{,}3X_A = 1178$

$$\Rightarrow X_A = \frac{1178}{0{,}3(1-\tan 300)} = 1437$$

$Y_A = 1437 \times \tan 300 = -2489$

$X_O = X_A - 990 = 447$

$Y_O = Y_A + 990 = -1499$

$$\left\{ \mathcal{T}_{412} \right\} = {}_{A}\left\{ \begin{matrix} -1437 & 0 \\ +2499 & 0 \\ 0 & 0 \end{matrix} \right\} \qquad \left\| \overrightarrow{A_{412}} \right\| = \sqrt{(-1437)^2 + (2499)^2}$$

$$\left\{ \mathcal{T}_{112} \right\} \; {}_{O}\left\{ \begin{matrix} 447 & 0 \\ -1499 & 0 \\ 0 & 0 \end{matrix} \right\}$$