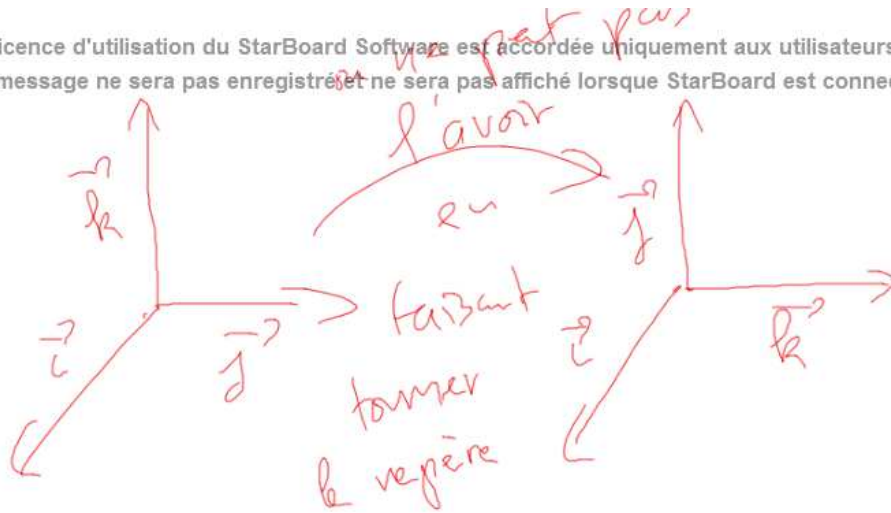
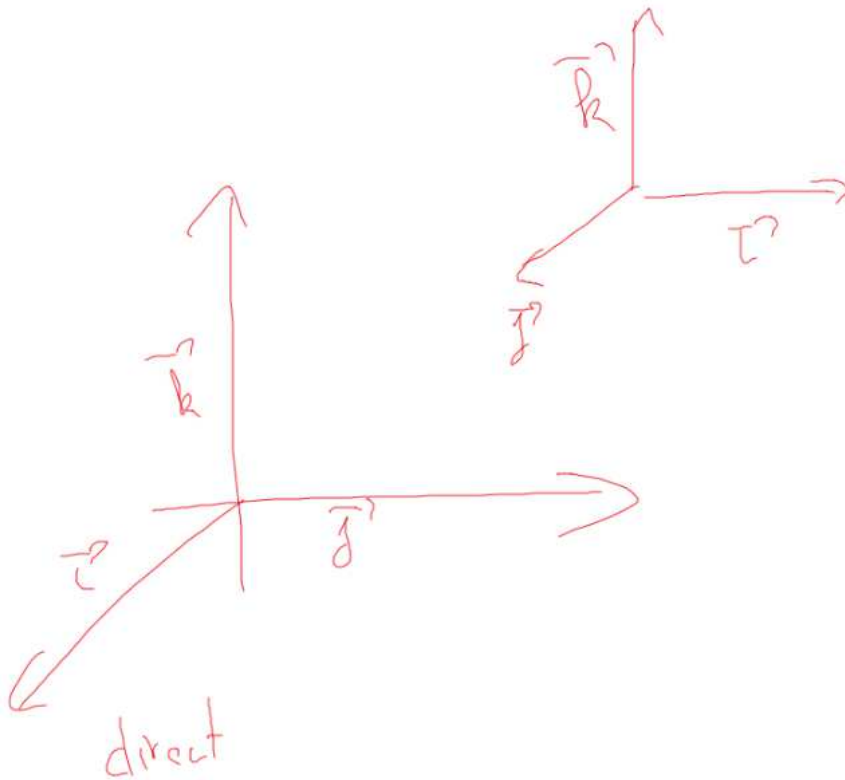


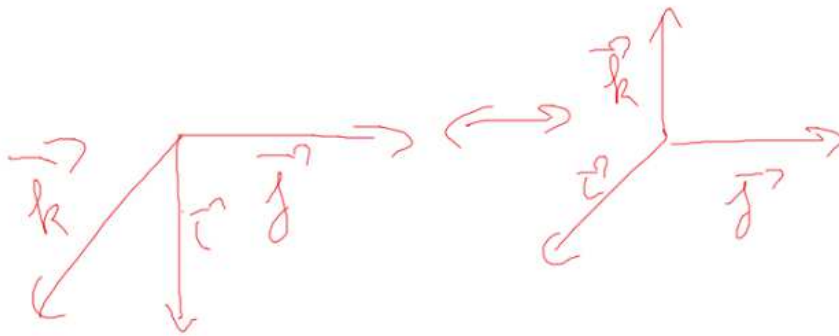
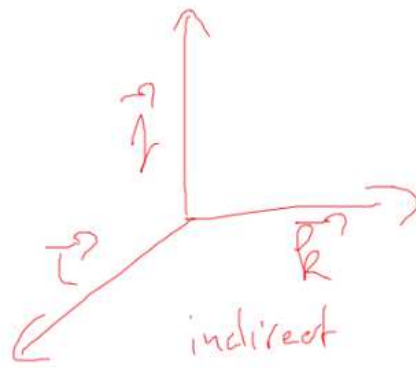
La licence d'utilisation du StarBoard Software est accordée uniquement aux utilisateurs du matériel StarBoard.
Ce message ne sera pas enregistré et ne sera pas affiché lorsque StarBoard est connecté.



orientation
directe

orientation
in directe





Exemples 2

$$\begin{aligned}
 1) \vec{u} \wedge \vec{v} &= (2\vec{i} + 3\vec{j}) \wedge (-2\vec{i} + \vec{k}) \\
 &= 2\vec{i} \wedge (-2\vec{i}) + 2\vec{i} \wedge \vec{k} + 3\vec{j} \wedge (-2\vec{i}) + (3\vec{j} \wedge \vec{k}) \\
 &= \vec{0} + 2(\vec{i} \wedge \vec{k}) - 6(\vec{j} \wedge \vec{i}) + 3(\vec{j} \wedge \vec{k}) \\
 &= -2(\vec{k} \wedge \vec{i}) + 6(\vec{i} \wedge \vec{j}) + 3(\vec{j} \wedge \vec{k}) \\
 &= -2\vec{j} + 6\vec{k} + 3\vec{i}
 \end{aligned}$$

$$3) \vec{u} = 4\vec{i} - \vec{j} + 2\vec{k} \text{ et } \vec{v} = -2\vec{i} + 2\vec{j} - \vec{k}$$

$$\begin{aligned} \vec{u} \wedge \vec{v} &= -8(\vec{i} \wedge \vec{i}) + 8(\vec{i} \wedge \vec{j}) - 4(\vec{i} \wedge \vec{k}) \\ &\quad + 2(\vec{j} \wedge \vec{i}) - 2(\vec{j} \wedge \vec{j}) + (\vec{j} \wedge \vec{k}) \\ &\quad - 4(\vec{k} \wedge \vec{i}) + 4(\vec{k} \wedge \vec{j}) - 1(\vec{k} \wedge \vec{k}) \\ &= \vec{0} + 8\vec{k} + 4\vec{j} - 2\vec{k} + \vec{0} + \vec{i} \\ &\quad - 4\vec{j} - 4\vec{i} + \vec{0} \\ &= -3\vec{i} + 6\vec{k} \end{aligned}$$

Exemple 3

$$a) \vec{AB} \wedge \vec{AE} = \begin{pmatrix} 4 \\ 2 \\ -3 \end{pmatrix} \wedge \begin{pmatrix} 1 \\ 4 \\ -1 \end{pmatrix} = \begin{pmatrix} 10 \\ 1 \\ 14 \end{pmatrix}$$

$$\vec{DE} \wedge \vec{AC} = \begin{pmatrix} -5 \\ 3 \\ -2 \end{pmatrix} \wedge \begin{pmatrix} -1 \\ -2 \\ 2 \end{pmatrix} = \begin{pmatrix} 2 \\ 12 \\ 13 \end{pmatrix}$$