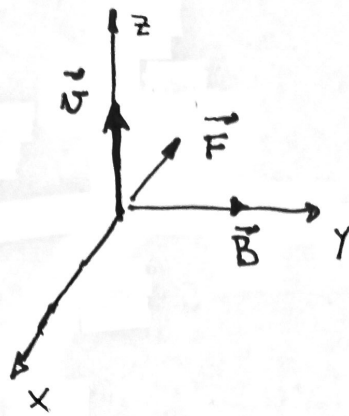


$$\vec{B} = 0,2 \text{ T } \hat{j}$$

$$Q = 3,2 \times 10^{-19} \text{ C}$$

$$\vec{v} = 2 \text{ m/s } \hat{k}$$



Per la regla de la mà dreta $\vec{F} = Q \vec{v} \times \vec{B} = -Q v B \hat{i}$

$$\vec{F} = -3,2 \times 10^{-19} \cdot 2 \cdot 0,2 \hat{i} = \boxed{-1,28 \times 10^{-19} \text{ N } \hat{i}}$$

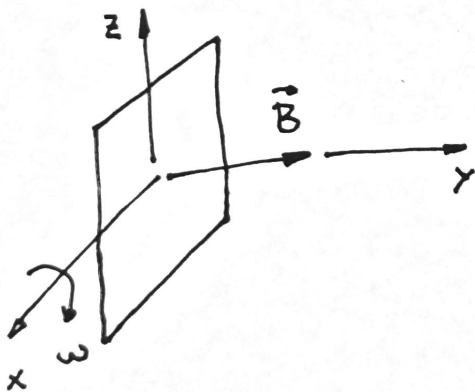
També el podem resoldre fent servir el determinant per calcular el producte vectorial:

$$\vec{F} = Q \vec{v} \times \vec{B} = 3,2 \times 10^{-19} \cdot \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ 0 & 0 & 2 \\ 0 & 0,2 & 0 \end{vmatrix}$$

$$= 3,2 \times 10^{-19} \cdot [(0 \times 0 - 2 \times 0,2) \hat{i} - (0 \cdot 0 - 2 \cdot 0) \hat{j} + (0 \cdot 0 - 2 \cdot 0) \hat{k}]$$

$$= -1,28 \times 10^{-19} \hat{i} \text{ N}$$

(b)



$$S = 0,01 \text{ m}^2$$

$$\omega = 30 \text{ rad/s}$$

El flux serà:

$$\phi = B \cdot S \cdot \cos \alpha = 0,2 \cdot 0,01 \cdot \cos(30t)$$

$$\phi = 0,002 \cos(30t)$$

La fem: $\mathcal{E} = -\frac{d\phi}{dt} = -0,002 \cdot (-\sin(30t)) \cdot 30$

$$\boxed{\mathcal{E} = 0,06 \cdot \sin(30t) \text{ V}}$$