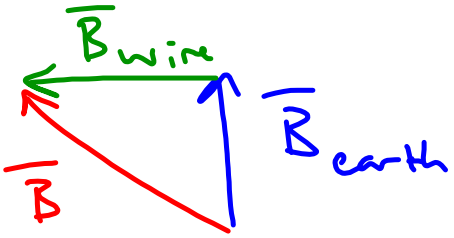
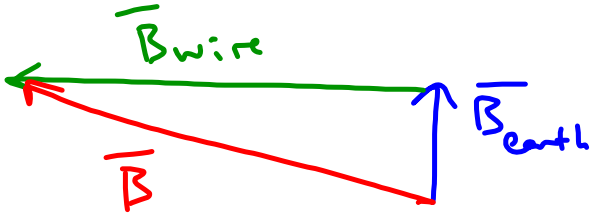
More Magnetic Fields





- Biot-Savart Law

$$\vec{B} = \frac{\mu_0}{4\pi} \frac{q\vec{v} \times \hat{r}}{|\vec{r}|^2}$$

$$\frac{\mu_0}{4\pi} = 1E{-}7 \ \frac{T \cdot m^2}{C \cdot m/s}$$

Cross Product:

$$\bar{A} = \langle A_x, A_y, A_z \rangle$$

$$\bar{B} = \langle B_x, B_y, B_z \rangle$$

$$\bar{A} \times \bar{B} = \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ A_x & A_y & A_z \\ B_x & B_y & B_z \end{vmatrix}$$

$$\bar{A} \times \bar{B} = \langle A_y B_z - A_z B_y, A_z B_x - A_x B_z, A_x B_y - A_y B_x \rangle$$

$$\bar{A} \times \bar{B} = |\bar{A}||\bar{B}| \sin\theta$$

mutually orthogonal

every axis is perpendicular to each other