8d) **Ampère's Law**

Force on a current density

\[ \mathbf{j} \cdot d\mathbf{A} = I \]

\[ \mathbf{j} \cdot d\mathbf{A} \, dl = I \, dl \]

\[ \frac{\partial}{\partial s} \mathbf{r} = I \, d\mathbf{e} \]

\[ d\mathbf{F} = \mathbf{B} \times d\mathbf{e} = \frac{\mathbf{B} \cdot d\mathbf{e}}{c} \]

\[ d\mathbf{B} = \frac{1}{c} \frac{d\mathbf{e} \times \mathbf{B}}{c} = \frac{d\mathbf{e} \times \mathbf{B}}{c} \]

\[ d\mathbf{B} = \frac{1}{c} \frac{d\mathbf{e} \times \mathbf{B}}{c} = \frac{d\mathbf{e} \times \mathbf{B}}{c} \]

\[ \mathbf{B} = \frac{1}{c} \mathbf{B} \cdot d\mathbf{e} = \frac{1}{c} \int d\mathbf{e} \times \mathbf{B} \]

\[ = \frac{1}{c} \int \frac{d\mathbf{e} \times \mathbf{B}}{c} \]

\[ = -\frac{1}{c} \int d\mathbf{r} \times \mathbf{B} \]

\[ \mathbf{D} \cdot \mathbf{B} \]

\[ \mathbf{D} \cdot \mathbf{B} = 0 \]

antisymmetric x symmetric