Homework 6

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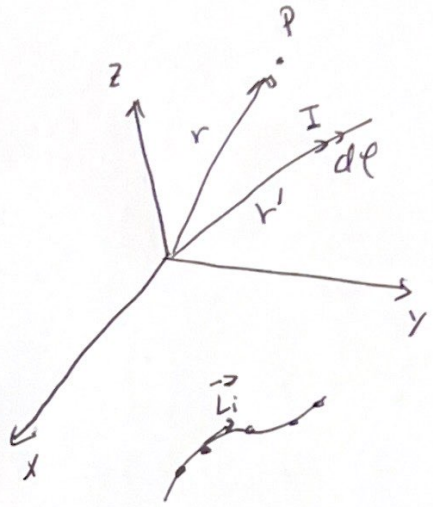
6.1.1

$$B_i = \frac{\mu_0 I}{4\pi} \frac{\vec{L_i} \times \vec{R_i}}{R^3_i}$$

$$\vec{R_i} = \vec{r} - \vec{r_i}'$$

$$\vec{B} = \sum_{i=1}^{n} \frac{\mu_0 I}{4\pi} \frac{\vec{L_i} \times \vec{R_i}}{R_i^3}$$

$$\vec{B} = \frac{\mu_0 I}{4\pi} \sum_{i=1}^{n} \frac{\vec{L_i} \times \vec{R_i}}{R_i^3}$$



6.1.2 check code

a) wire along y axis, find field at diffrent distances in x and z plane

$$B = \frac{\mu_0 I}{2\pi r}$$

b) current loop with radius r has field at center

$$B = \frac{\mu_0 I}{2r}$$

6.1.3

$x = r\cos\theta$

$y = r\sin\theta$

$$\Phi_B = \int_S \vec{B} \cdot d\vec{s}$$