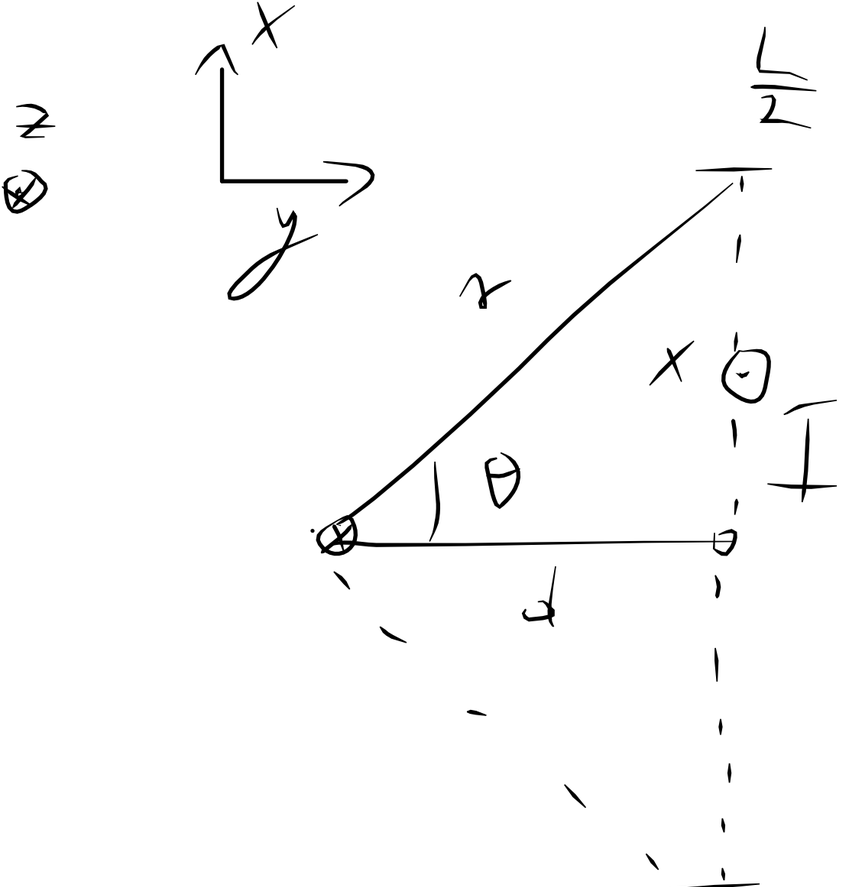


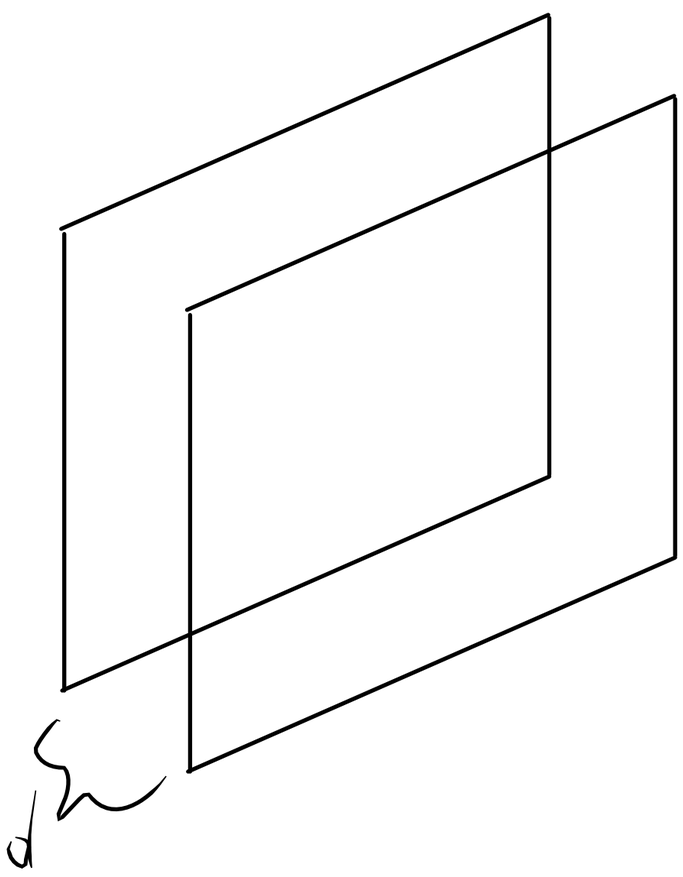
$$d\bar{B} = \frac{\mu_0 \, d\bar{I}}{2\pi r}\left[-\cos\alpha ; \sin\alpha ; 0\right]$$

$$r = d\sec\theta \qquad d\bar{I} = k_p \, dx$$

$$x = d\tan\theta$$

$$dx = d\sec^2\theta \, d\theta$$

$$\arctan\left(\frac{L}{2d}\right) = \alpha$$



$$d\bar{B} = \frac{\mu_0 k_p \, d\sec^2\theta \, d\theta}{2\pi \, d\sec\theta}\left[-\cos\theta ; \sin\theta ; 0\right]$$

$$\bar{B} = \frac{\mu_0 k_p}{2\pi}\int_{-\alpha}^{\alpha}\left[-1 ; \tan\theta ; 0\right] d\theta =$$

$$= -\frac{\mu_0 k_p}{\pi}\arctan\left(\frac{L}{2d}\right)\hat{e}_x$$

$$dF = k_p \, dx \, dy \, B = \frac{\mu_0 k_p^2}{2\pi} \, dS$$

$$\rho = \frac{\mu_0 k_p^2}{2\pi}$$