Chapter 6 review problem

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A spherical shell of radius a has a uniform surface charge distribution σ. The sphere is rotating around an axis through its center with angular speed ω. Let the center of the sphere be the origin and let the rotation axis be the z-axis.

    a. Calculate the magnetic moment of the rotating spherical shell.

    b. What is the magnetic field due to the rotating sphere at a point $\vec{r} = d\hat{z}$, where $d >> a$?