

1 | Precessional Velocity

Taking the setup, we can figure the sum of the angular momentums and leverage it to figure the spin angular momentum.

Let's first define a system: \hat{i} is "right" on the figure, \hat{j} "in" the page, \hat{k} "up" the figure.

We note that the normal spin gives us:

$$\vec{L}_s = I\vec{\omega}_s\hat{i} \quad (1)$$

This does not

Furthermore, we can figure torque—and subsequent angular momentum contribution—of gravity as follows:

$$\vec{\tau}_g = lmg\hat{j} \quad (2)$$