

1 | Precessional Velocity

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

We note that the normal spin gives us:

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

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

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

We also note that:

$$\vec{L}_g = \int \vec{\tau}_g dt = lmg t \quad (3)$$

Adding the components