Angular momertem of the rigid lody aloatite maso center $G$

$$
\begin{aligned}
& \vec{v}=\vec{v}+\vec{a} \times \vec{r} \quad \vec{l}=m \vec{v} \\
& \vec{H}_{G}=\int \vec{r}^{\prime} \times(\vec{\omega} \times \vec{r}) d m \\
& \vec{r} \times(\vec{z} \times \vec{r})=\overrightarrow{r^{\prime}} \times\left|\begin{array}{ccc}
x & z & z \\
a_{x} & a_{y} & a_{z} \\
x & y & z
\end{array}\right| \\
& =\left|\begin{array}{ccc}
\vec{x} & \vec{y} & \vec{z} \\
x & y & z \\
8 \omega_{y}-y \omega_{z} & -3 \alpha_{1} x \omega_{3} & y \omega_{k}-x \omega_{z}
\end{array}\right| \\
& =\left[y\left(y \omega_{x}-x \omega_{y}\right)-3\left(-3 \omega_{x}+x \omega_{z}\right)\right] \vec{j}+\left[z\left(3 \omega_{y}-y \omega_{z}\right)-x\left(y \omega_{x}-x \omega_{y}\right)\right] \vec{j} \\
& +\left[x\left(-3 \omega_{x}+x \omega_{y}\right)-y\left(3 \omega_{y}-y \omega_{z}\right)\right] \vec{k} \\
& =\left[\left(y^{2}+z^{2}\right) \omega_{x}-x y \omega_{y}-x z \omega_{2}\right] \vec{x}+[\quad] \vec{y}+[\quad] \vec{k} \\
& \vec{H}_{G}=H_{x} \vec{i}+\mathrm{H}_{y} \vec{j}+\mathrm{H}_{z} \vec{k} \\
& \left.H_{x}=\int\left[y_{3}^{2}+z^{2}\right) \omega_{x}-x_{y} \omega_{y}-x_{3} \omega_{z}\right] d x
\end{aligned}
$$

$$
\begin{aligned}
& \text { In planemotion } \mathrm{H}_{5}=\tilde{I} \omega
\end{aligned}
$$

Primeiple of impulse \& nowentum: (sa pege 868.)





