Physics 341 Sage Assignment 2

S1. A certain lamina has the following inertia tensor:

$$\mathbb{I} = \begin{bmatrix} a & -b & 0 \\ -b & a & 0 \\ 0 & 0 & 2a \end{bmatrix}$$

The lamina rotates with angular velocity vector

$$\vec{\omega} = [\omega_x, \omega_y, \omega_z]$$

Use Sage to calculate

(a) the angular momentum vector $\vec{L}$;

(b) the rotational kinetic energy T;

(c) the principal moments of inertia of the lamina; and

(d) a set of unit vectors corresponding to the principal axes of rotation.