[mex177] Stability of sleeping top

A symmetric top (with principal moments of inertia $I_\perp, I_3$) is standing in an upright position ($\theta = 0$) and rotating with angular velocity ω_3 about the symmetry axis. This motion is only stable under small perturbations if ω_3 exceeds a critical value ω_c. Find ω_c.

Solution: