A thin hoop of mass \( m \) and radius \( R \) rolls without slipping about the \( z \) axis. It is supported by an axle of length \( b \) through its center. The hoop circles around the \( z \) axis with angular speed \( \Omega \). (Note: the moment of inertia of a hoop for an axis along its diameter is \( (1/2)mR^2 \).) What is the normal force of the ground on the hoop? What is the vertical force on the axle at the joint where the axle meets the \( z \)-axis?