1. Goldstein 4.14

2. Goldstein 4.22

3. Goldstein 4.23 [Foucault pendulum]

Hints: no air resistance, assume that \( \omega \) (angular freq. of Earth rotation) is small (i.e., work in \( \Theta(\omega) \) approximation). Write down EoM for \( x \) & \( y \) of the pendulum & solve for \( z = x + iy \) assume small oscillations for the pendulum.