Session 10

1. An air column at 60° N with $\zeta = 0$ initially stretches from the surface to a fixed tropopause at 10 km height. If the air column moves until it is over a mountain barrier 2.5 km high at 45° N, what is its absolute vorticity and relative vorticity as it passes the mountain top?

2. Consider a tank of water rotating at the rate of 20 revolutions per minute. The depth of the fluid at the center is 10 cm. Derive the formula for the depth of water depending on the distance from the center.