5-4)

Consider a cone oriented with its tip pointing downward; the sides of the cone make an angle β (beta) with the central axis. The cone is rotating about its axis with angular speed ω (omega). A small block m is placed on the inner surface of the cone, where the co-efficient of static friction is μ_s. We would like the block to remain at the same distance h above the level of the tip of the cone.

a) What is the minimum value for omega so that the block does not slip?
b) What is the maximum value for omega so that the block does not slip?