7. BOUNCY BALL (5 points) *(by J. Toots)* A homogeneous elastic ball with radius R bounces from a vertical wall in such a way that it rebounds back exactly in the same direction it came from. The ball's speed before the bounce is v at an angle α to the vertical; the ball also has an angular speed ω. There was no slipping at the contact point, but do not assume that $\omega R = v\cos\alpha$. The bounce was completely elastic, ie no kinetic energy was lost; also, the horizontal components of incident and rebound velocities have the same magnitude. The moment of inertia for a homogeneous ball is $I = \frac{2}{5}mR^2$.

i) *(1 point)* Find the angular speed ω_2 of the ball after the bounce.

ii) *(2 points)* Find the initial angular speed ω in terms of v, α and R.

iii) *(2 points)* What is the minimum value for coefficient of friction μ that such bounce could happen?