PHYS 152 Practice exam 3

1. A round disk, whose rotational inertia is 0.07 kgm^2, is spinning around an axis passing through its center of mass at a constant angular speed of 3 s^{-1} as shown below. Somebody happened to drop a blub of gum onto the disc. The gum as a mass of 50 gram and fall at a distance of 50 cm away from the rotation axis. Assume all the frictions are negligible. What would be the angular speed of the disc after the gum is **stick** to the disc? Is this angular speed a constant?
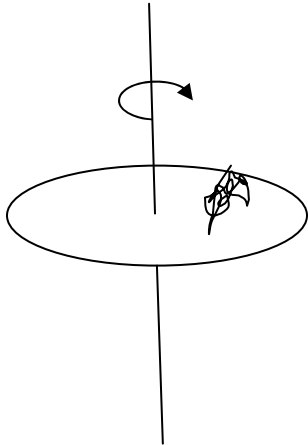
2. A ball of mass m starts from rest, moving down along a frictionless track. The initial position of the ball is $h=1.0$ *meter* above the ground. When it reaches the bottom of the track, (the ground level), it completely **inelastically** collides with a bigger ball whose mass is $2m$. What is the velocity of the bigger ball AFTER the collision?