Recitation Exam 10

Problem 1: (10 points)

A merry-go-round in a playground spins with initial angular velocity $\omega_0$. You may assume the merry-go-round is a uniform disk of radius $R$ and mass $M$ with moment of inertia $I = MR^2/2$. A child, also of mass $M$, stands at the outer edge of the merry-go-round. The child then walks in until she gets to the center of the merry-go-round.

(a) (5 pts) Calculate the angular velocity of the merry-go-round after the child reaches the center.

(b) (5 pts) Calculate the work done by the child.