

$$L_i = L_f$$

$$I_i \omega_i = I_f \omega_f$$

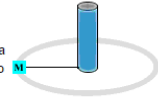
$$m r_i^2 \left(\frac{v_i}{r_i} \right) = m r_f^2 \left(\frac{v_f}{r_f} \right)$$

$$v_i r_i = v_f r_f$$

$$a_c = \frac{v^2}{r}$$

13.
[Hint]

Initially, a 2.00-kg mass is whirling at the end of a string (in a circular path of radius 0.750 m) on a horizontal frictionless surface with a tangential speed of 5 m/s. The string has been slowly winding around a vertical rod, and a few seconds later the length of the string has shortened to 0.250 m. What is the final centripetal acceleration of the mass?



- 33.3 m/s²
- 100 m/s²
- 300 m/s²
- 900 m/s²