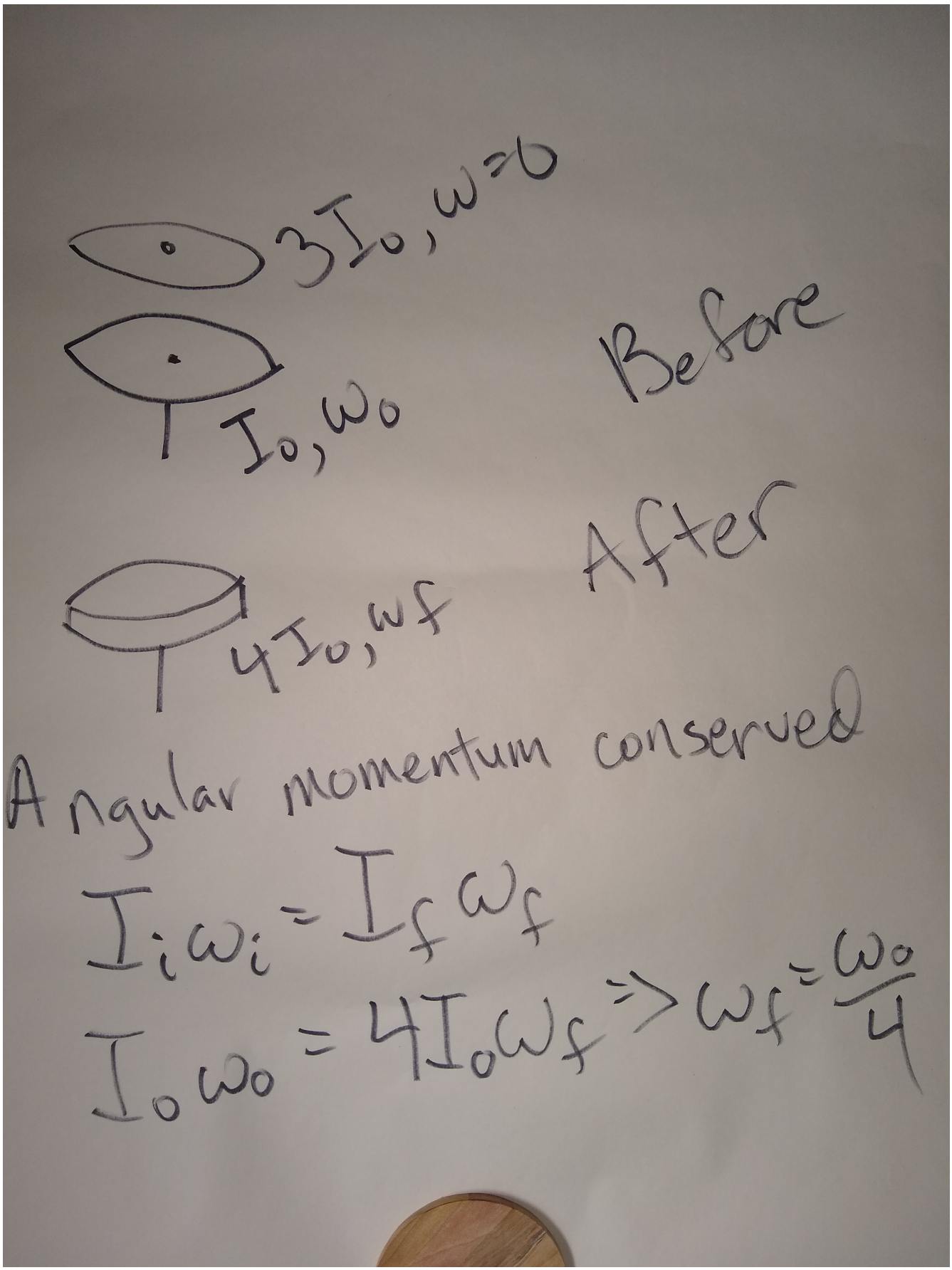
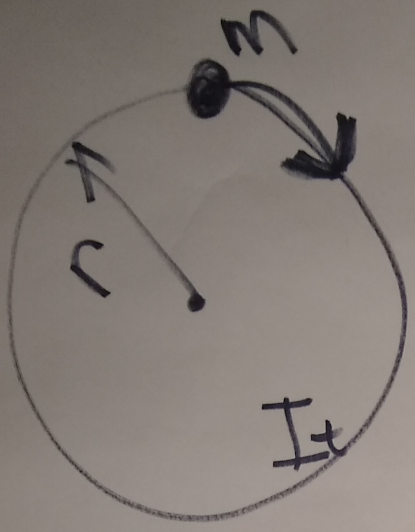

$3I_0, \omega = 0$
I_0, ω_0
Before
$4I_0, \omega_f$
After
Angular momentum conserved
$I_i \omega_i = I_f \omega_f$
$I_0 \omega_0 = 4 I_0 \omega_f \Rightarrow \omega_f = \frac{\omega_0}{4}$



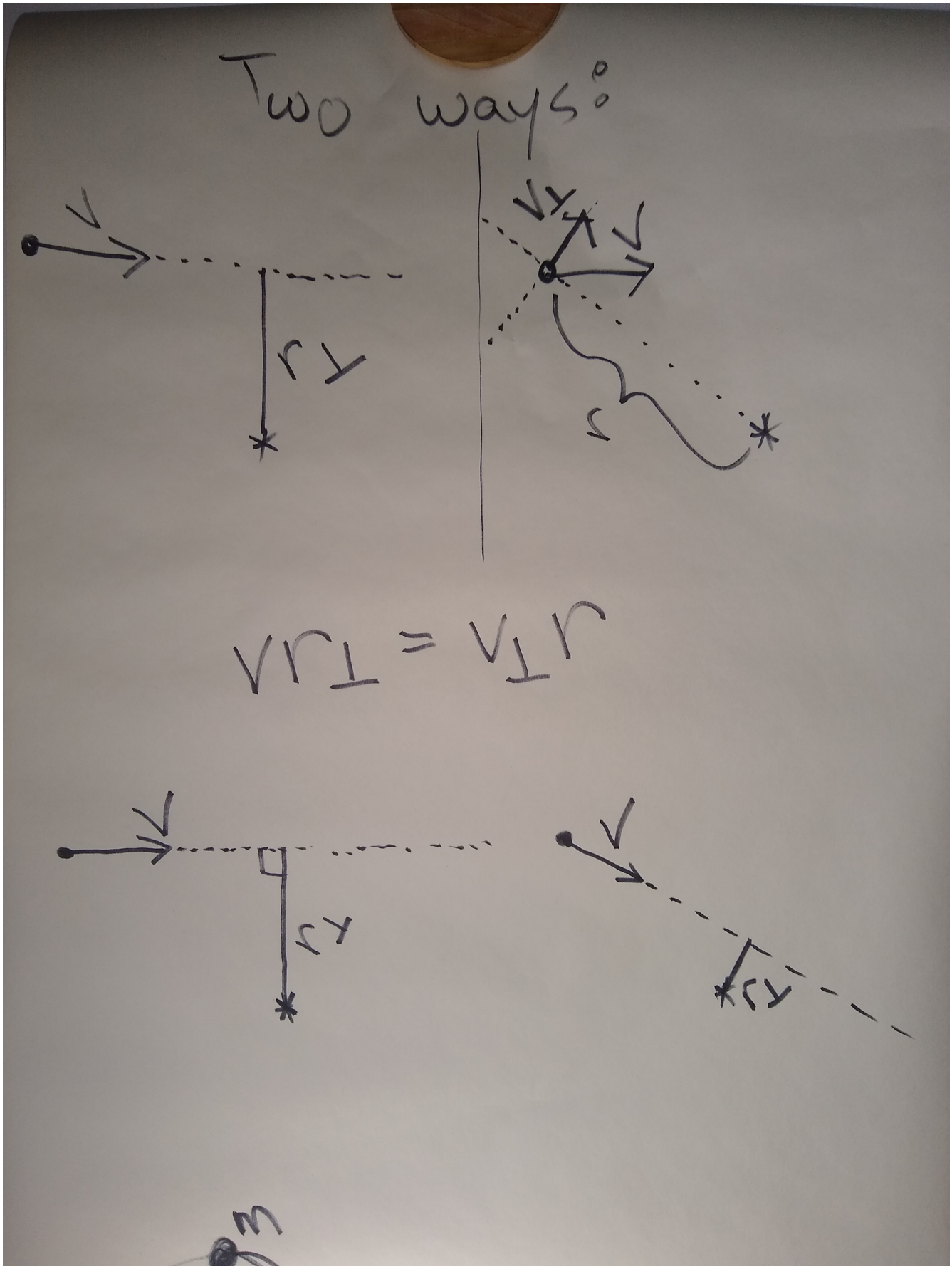
angular mom. conserved

$$L_0 = 0 = L_f = I_p \omega_p + I_t \omega_t$$

$$I_p = mr^2 \qquad \omega_p = v_p / r = \frac{1.5\ m/s}{2m} = 0.75\ rad/s$$

$$0 = mr^2 \omega_p + I_t \omega_t$$

$$\omega_t = \frac{-mr v_p}{I_t} = -0.36\ rad/s$$


Two ways: