Calculate the cross product $\vec{A} \times \vec{B} = \vec{C}$ where $\vec{A} = 3\hat{i} + 4\hat{j}$ and $\vec{B} = 1\hat{k}$.

Two identical solid rotating disks around the same axis, but with two different rotation rates: $\omega_1 = -10$ rad/s, $\omega_2 = 10$ rad/s are forced together and rotate constantly. What is the final rotation rate of the two disks?

On a spinning 100 kg disk with $\omega = 10$ rad/s and radius 1 m, I drop a 10 kg pellet on its rim. What is its new angular speed?

A 1 kg pellet hits a 10 kg rod at one end that is 1 m long that swings on one end. If the 0.1 kg pellet has a velocity of 1 m/s what is the initial rotation rate of the rod?

A large pellet strikes a solid disk as show in the figure below. The pellet was traveling at 1 m/s and has a mass of 1 kg. The disk has a mass of 10 kg and radius of 1 m. If the disk was not initially rotating, what is its final angular velocity after the hit?