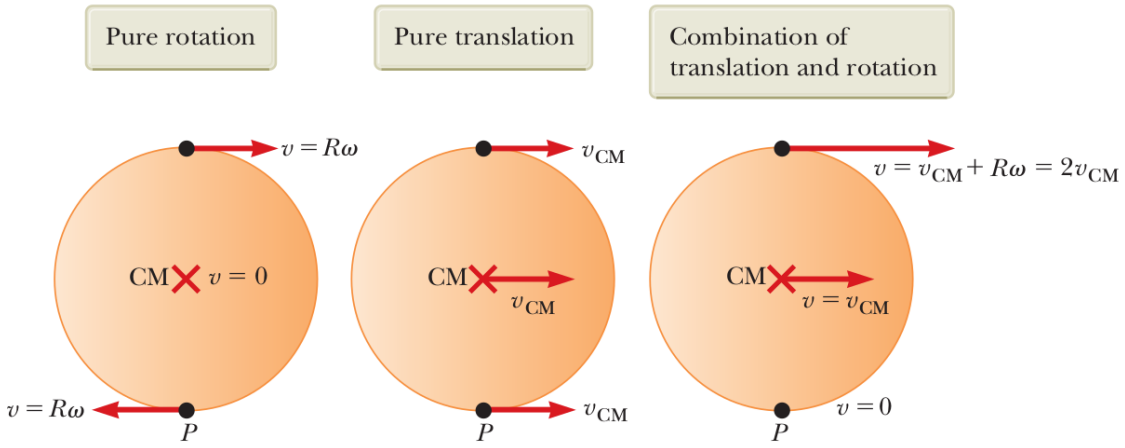
PHY121 Summer 2018
Pre-work for Thursday 5/31

1. Consider the following diagram. Discuss the differences between the types of motion. Give a physical example of each case.



2. Consider each of the following cases.

   (a) Determine the angular position, velocity, and acceleration at t = 5 s of a door with an equation of motion $\theta(t) = 5.5 + 14t^2 - 3t^4$.

   (b) A dentist's drill starts from rest. After 0.35 s of constant angular acceleration, it turns at a rate of 2.52×10^4 revolutions per minute. Find the drill's angular acceleration.

   (c) A car traveling around a flat circular track has a tangential acceleration a. If the car only makes it $\frac{1}{4}$ of the way around the track before it skids off, what is the coefficient of static friction between the car and the track?