

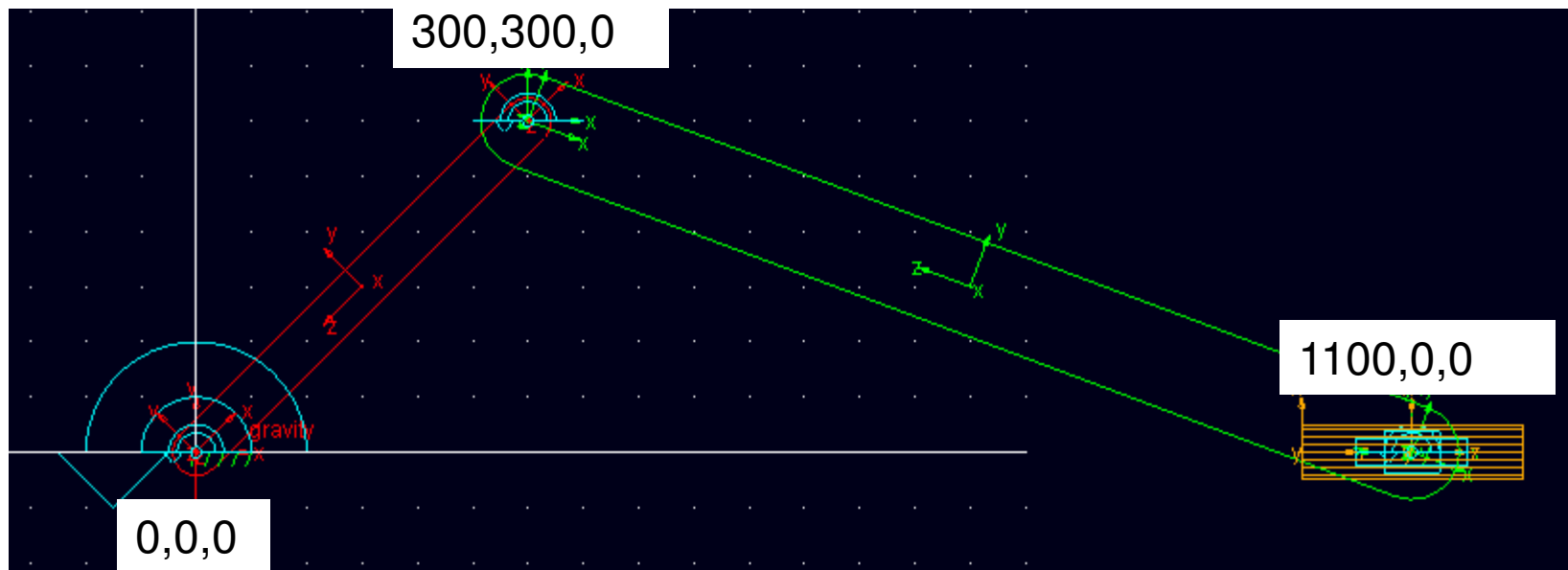
ADAMS Assignment 2

ME451: Kinematics and Dynamics of
Machine Systems
(Fall 2010)

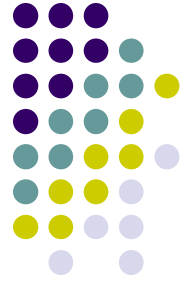


Model

- Construct a slider crank mechanism as shown
 - The model is planar (2-dimensions only)

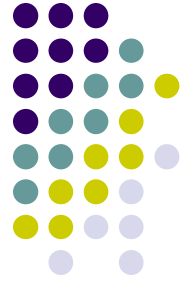


ADAMS HELP



- Use “Rigid Body: Cylinder” to build the slider
- Use “Rigid Body: Link” to build crank and connecting rod
- Use a revolute joints between “ground and crank”, “crank and connecting rod”, “connecting rod and slider” and use translational joint between “slider and ground”
- Mass of Crank: 1 Kg
- Mass of Connecting Rod: 2 Kg
- Mass of slider: 0.5 Kg, The slider is 100 mm long on either side of its center at (1100,0,0)
- The crank is driven at 1000 rpm
- Run a kinematics analysis for 2 revolutions using 1000 steps

ASSIGNMENT



1. Report maximum acceleration for the center of mass of the connecting rod
2. Find out the maximum value of the reaction force in the revolute joint between
 1. Ground and the crank
 2. Crank and the connecting rod
3. Find out the maximum value of acceleration for the slider
4. Plot the velocity of the slider and report on the maximum velocity