ME 115(b): Problem Set #5
(Due February 22, 2001)

Problem 1: Problems 8(a,b) in Chapt. 5 of MLS.

Problem 2: Consider the object shown below:

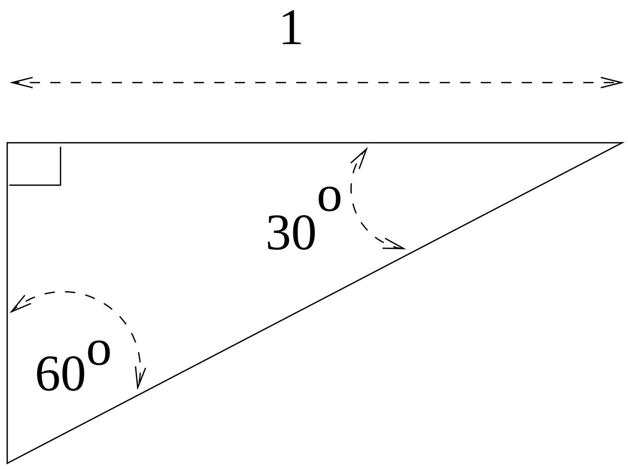

Figure 1: Planar Object

Assume that the object will be grasped by two point contact fingers with friction. Assume that the friction cone half angle is 30^o. Also assume that grasping at the corners is not allowed.

1. Determine the feasible contact regions in the contact configuration space.
2. Determine the largest square which can be inscribed in the feasible contact region. Show on the object the corresponding grasping regions.

Problem 3: For the grasp pictured below, assume a point contact with friction model, where $\mu = \tan 30^o$.

1. Is this grasp Force Closure?
2. Calculate the grasp constraint equations. Is this grasp manipulable?

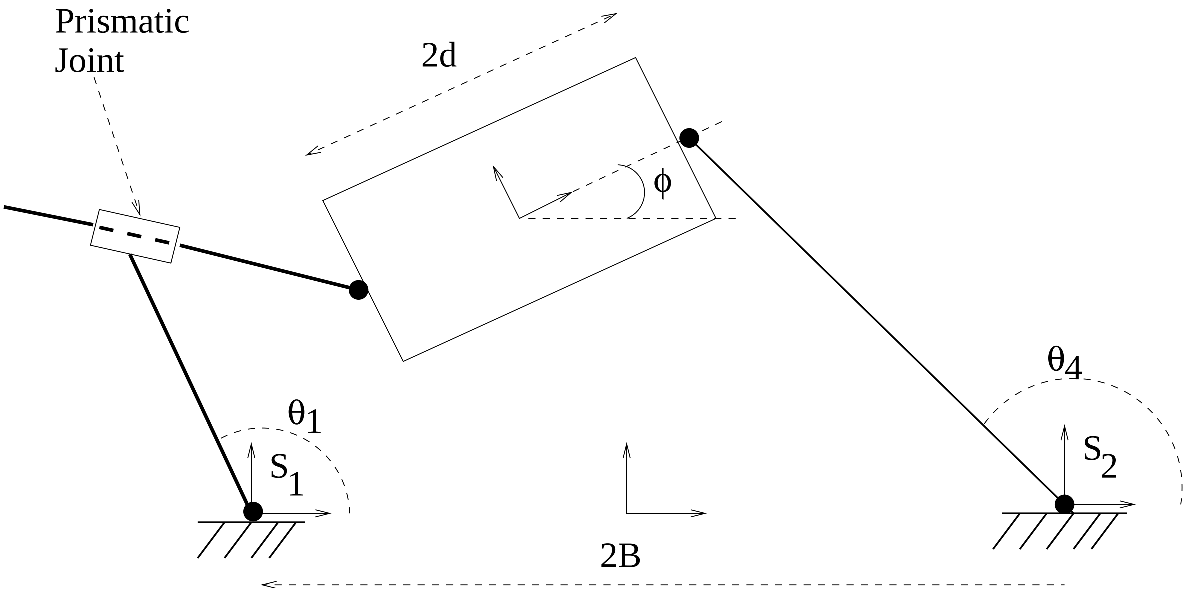

Figure 2: Two Fingered Grasp