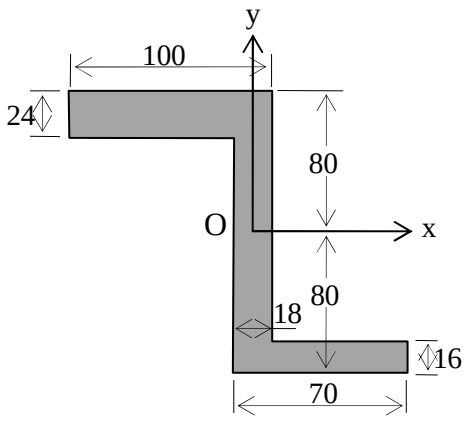
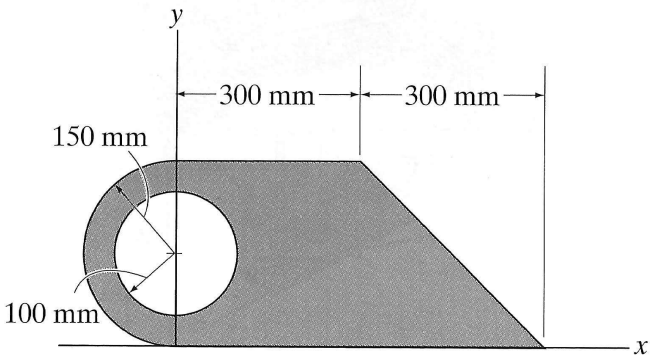
UNIVERSITY OF TORONTO
Department of Civil Engineering

CIV100F - MECHANICS – GROUP G (107)
Problem Set 9
Due: 4:00 pm on Friday November 09, 2012
In SF3201

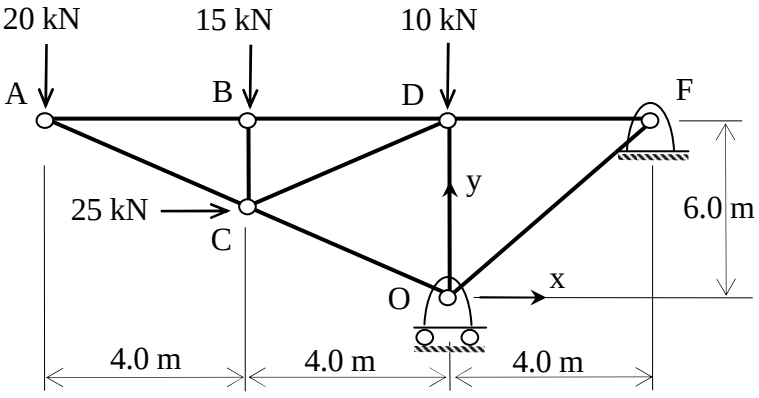
1. Locate the centroid of the z-section with reference to the origin. Show the result on a separate section sketch. All dimensions shown are in mm.



2. Locate the centroid of the composite area. Show the result on a separate sketch.



3. A truss structure is supported by one roller and one pin and subjected to four point loads as shown.



i.) Assuming that the truss members have a mass per unit length of 20 kg/m and g=10 m/s^2 for simplicity, locate the centre of mass with reference to origin and show it on a new sketch. Ignore all point loads shown.

ii.) Determine the support reactions due to the self-weight of the truss. Ignore all point loads shown.

iii.) Using the method of sections, determine the internal forces of members BD, CD, CO, DF and OF. Use a new FBD. Indicate whether the members are in compression or tension. Neglect the self-weight of the members.