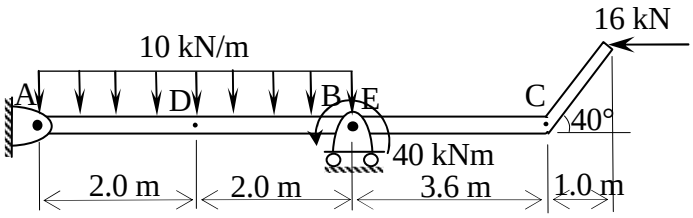
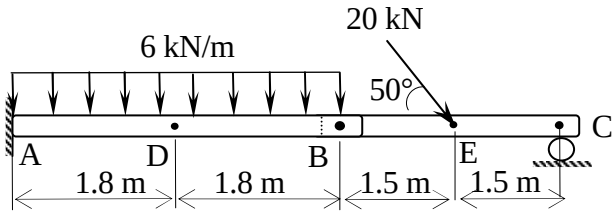
UNIVERSITY OF TORONTO
Department of Civil Engineering

CIV100F - MECHANICS – GROUP G (107)
Problem Set 8
Due: 5:00 pm on Monday November 05, 2012
In Dropbox #2 in GB422 (Computer Lab)

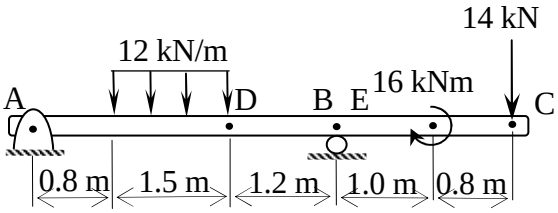
1. Steel beam ABC, supported by a pin at A and a roller at B, is subjected to a distributed load, a couple moment, and a point load as shown. Determine the internal normal force, shear force and moment at points C, D, E. Point E is located just to the right of the roller support at B, where the couple moment acts.



2. A compound beam, supported by a fixed connection at A and a roller at C, is subjected to a uniformly distributed load and a point load as shown. There is also an internal pin at B. Determine the internal normal force, shear force and moment at points D and E. Point load is located just to the right of E.



3. A simply supported beam, having a pin at A and a roller at B, carries a distributed load, a couple moment and a point load as shown. Determine the internal normal force, shear force and moment at points D and E, which are located just to the right of distributed load and point E respectively.



4. Neatly draw the moment and shear diagrams for the beams in questions 1, 2 and 3, using the area method. Draw diagrams underneath new beam sketches. Clearly indicate shear and moment values at all points. Compare your results with those found in questions 1, 2 and 3.