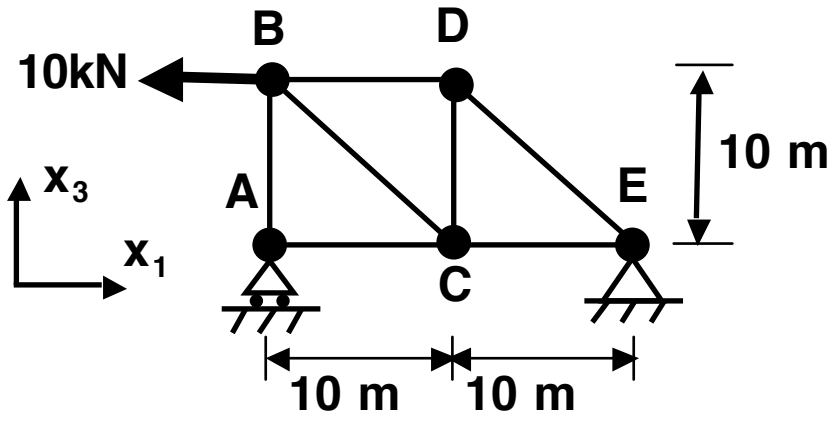
Unified Engineering Problem Set **Lectures: (M6), M7*(look-ahead)***
Week 4 Fall, 2007 **Units: (M1.3), M1.4*(look-ahead)***

M4.1 ***(15 points)*** **MOSTLY LOOK-AHEAD:** ***Use CDL 1.9 (especially Examples 1.4 & 1.7), initial parts of M1.4 notes,***
A 10-meter high truss has a 20-meter span and is made up of seven individual bars of various lengths in two bays as shown in the accompanying illustration. Each bay of the truss is 10 meters long. The truss is simply-supported being pinned at the right end and attached via a roller support at the other. A load of 10 kN is applied in the negative x_1 direction at the upper left joint, B, as shown.



(a) Draw the free body diagram for this situation.

(b) Determine the reaction forces.

(Approach this part of the problem by isolating bars and their intersections at pins as subsystems. Note that we will extend this to the "Method of Joints".)

(c) Determine the load in all the bars. Draw a clear diagram showing the entire configuration and the manner in which loads are carried.