ENDS 231. Assignment #3

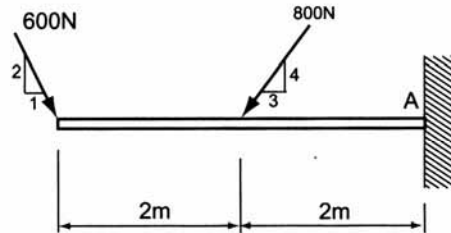**Date:** 1/31/08, *due 2/12/08*   *Pass-fail work*

**Problems:** from Onouye, Chapters 3 & 4.
*Note: Problems marked with a * have been altered with respect to the problem stated in the text.*

(15%) **3.2.3** Determine the support reactions developed at *A* for
the cantilevered balcony beam. *(equilibrium of rigid bodies)*

Problem 3.2.3

> *Partial answers to check with:* $A_x = +212$ N,
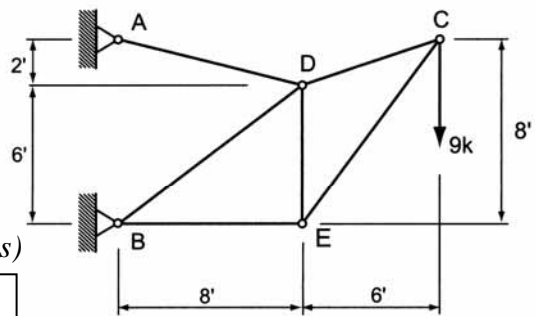> $A_y = +1,177$ N, $M_{RA} = -3,428$ Nm

(20%) **3.2.4** Solve for the support reactions at *A* and *B*.
(equilibrium of rigid bodies)
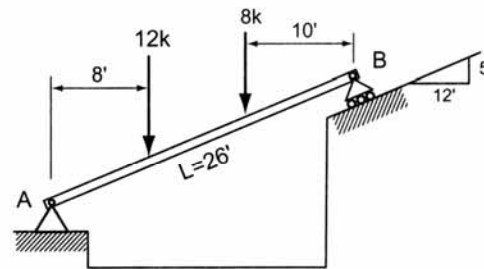
> *Partial answers to check with:* $A_x = +3.08$ k
> $A_y = +12.62$ k, $B = 8$ k.

Problem 3.2.4

(45%) *__**4.1.8**__ A cantilever truss supports a single load of 9 k at the
free end. Solve for the support reactions and determine all
member forces using the method of joints. *(method of joints)*

(10%) | ***Also solve for all member forces to verify your work
using Multiframe4D. <u>You will be given a standard steel
section to use</u>. Submit the file to the Assignments folder
in the class folder, and provide a print of the axial forces
diagram.** |

Problem 4.1.8

> *Partial answers to check with:* $A = 16.23$ k,
> $B_x = +15.75$ k, $B_y = +5.06$ k, $BD = -8.43$, $DE = 12$ k,
> $DC = 9.49$ k, $EC = -15$ k.