ENDS 231. Assignment #4

Date: 2/13/07, due 2/20/07

Pass-fail work

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

4.1.15 A bowstring or crescent truss is loaded as shown. Determine the member forces in DE, EG, and GH. (using the method of sections).

*Also identify any special case member forces and SOLVE for member forces EH and EB using the method of joints.

Partial answers to check with: \( B_x = +5.5 \text{ k}, A_y = +6.5 \text{ k}, HG = 5.5 \text{ k}, ED = -7.12 \text{ k}, \)
\( EG = 1.77 \text{ k}, EH = 2 \text{ k}, EB = -7.78 \text{ k}. \)

4.1.13 Solve for member forces DE, DH, and GH. (using the method of sections).

Partial answers to check with: \( DH = -13.4 \text{ k}, \)
\( DE = -6 \text{ k}, GH = 6 \text{ k}. \)

4.2.7 A three-hinged gabled frame supports two unequal roof loads as shown. Determine the support reactions and the internal pin forces at B.

Partial answers to check with: \( A_x = +1.54 \text{ kN}, \)
\( A_y = +4.5 \text{ kN}, C_x = -1.54 \text{ kN}, \)
\( C_y = +6.3 \text{ kN}, B_x = -1.54 \text{ kN} \text{ (wrt AB)}, \)
\( B_y = -0.9 \text{ kN} \text{ (wrt AB)}. \)