

ENDS 231. Assignment #4

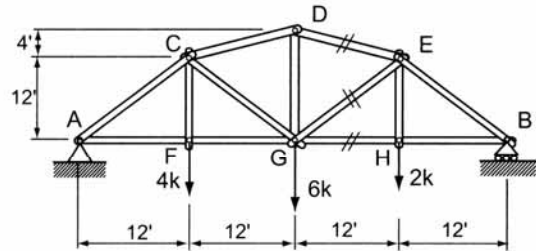
Date: 2/12/08, due 2/19/08

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.

- (35%) * 4.1.15 A bowstring or crescent truss is loaded as shown. Determine the member forces in DE, EG, and GH. (method of sections)

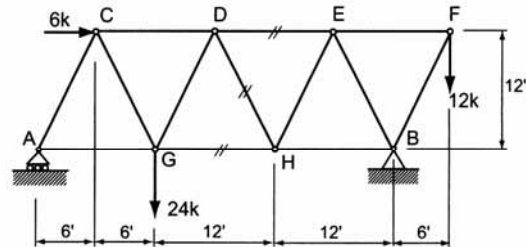


Problem 4.1.15

- (10%) *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: $B_y = +5.5 k$, $A_y = +6.5 k$, $HG = 5.5 k$, $ED = -7.12 k$, $EG = 1.77 k$, $EH = 2 k$, $EB = -7.78 k$.

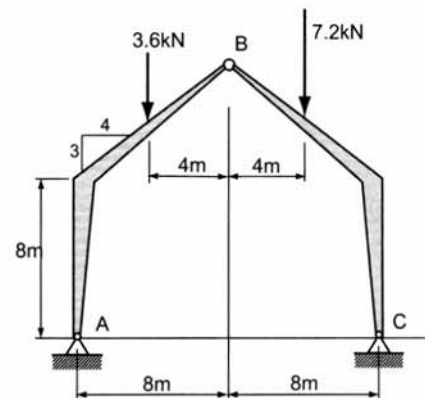
- (25%) 4.1.13 Solve for member forces DE, DH, and GH. (method of sections)



Problem 4.1.13

Partial answers to check with: $DH = -13.4 k$, $DE = -6 k$, $GH = 6 k$

- (30%) 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. (pinned frames)



Problem 4.2.7

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