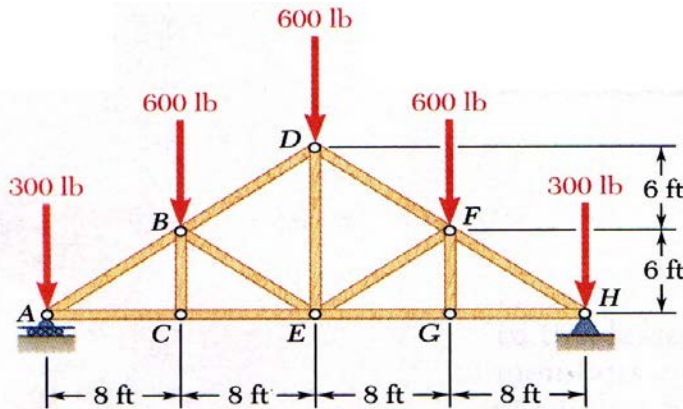


EGM 3420C - Engineering Mechanics Statics Review Problems

Fa14

Problem 6: Determine the forces in members BC , EG , EF and DF .



$A_y = H_y = \frac{1}{2} (300 + 600 + 600 + 600 + 300) = 1200 \text{ lbs} \uparrow$
 Symmetry
 $\sum M_E = 0 = -16(1200) + 16(300) + 8(600) - \frac{4}{5}DF(6) - \frac{3}{5}DF(9)$
 $9.6 DF = -9600$
 $DF = -1000$
 $\uparrow \sum F_y = 0 = \frac{3}{5}DF - \frac{3}{5}EF - 600 - 300 + 1200$
 $EF = -500$
 $\rightarrow \sum F_x = 0 = -EG - \frac{4}{5}EF - \frac{4}{5}DF$
 $EG = 1200$

ANSWER: $BC = 0$ $DF = 1000 \text{ lbs(C)}$ $EF = 500 \text{ lbs(C)}$ $EG = 1200 \text{ lbs(T)}$