

ENDS 231. Assignment #2

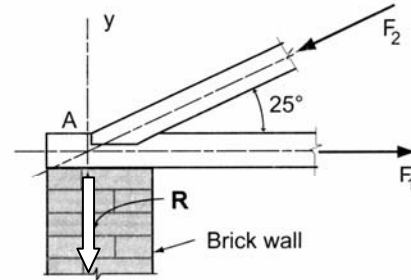
Date: 6/1/06, due 6/7/06

Worth 25 pts.

Problems: from Onouye, Chapter 2.

2.3.22 One end of a timber roof truss is supported on a brick wall but not securely fastened. The reaction of the wall is only vertical. Assuming that the maximum capacity of either the inclined or horizontal member is 600 lb., determine the maximum magnitudes of F_1 and F_2 such that their resultant is vertical through the brick wall.

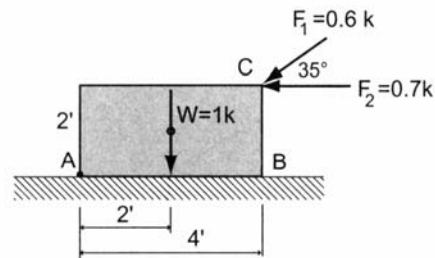
Partial answers to check with: F_2 can be 662 lb.
OR F_1 can be 544 lb.



Problem 2.3.22

2.4.2 A 1000-lb. crate is subjected to two applied forces at C. Determine the moment about points A and B due to forces F_1 , F_2 , and the weight W.

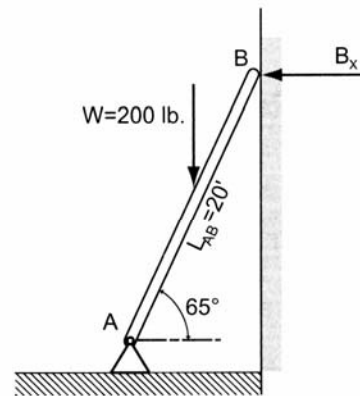
Partial answers to check with: $M_A = -1.0 \text{ k-ft}$
 $M_B = +4.4 \text{ k-ft}$.



Problem 2.4.2

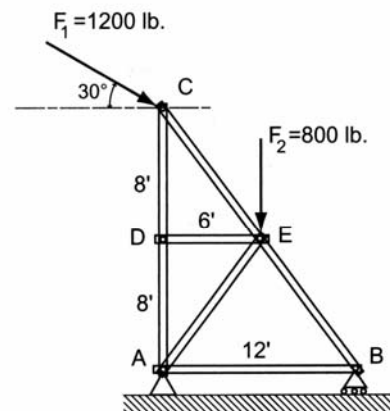
2.4.4 A painter is standing at midheight on a ladder inclined at an angle of 65° from the horizontal. Determine the horizontal force B_x (reaction from the wall surface) necessary such that the resultant moment at A is equal to zero.

Partial answers to check with: $B_x = 46.7 \text{ lb}$.



2.4.8 A vertical truss supports two applied forces F_1 and F_2 . Determine the moment at supports A and B.

Partial answers to check with: $M_A = -21,420 \text{ lb-ft}$
 $M_B = -4,628 \text{ lb-ft}$



Problem 2.4.8