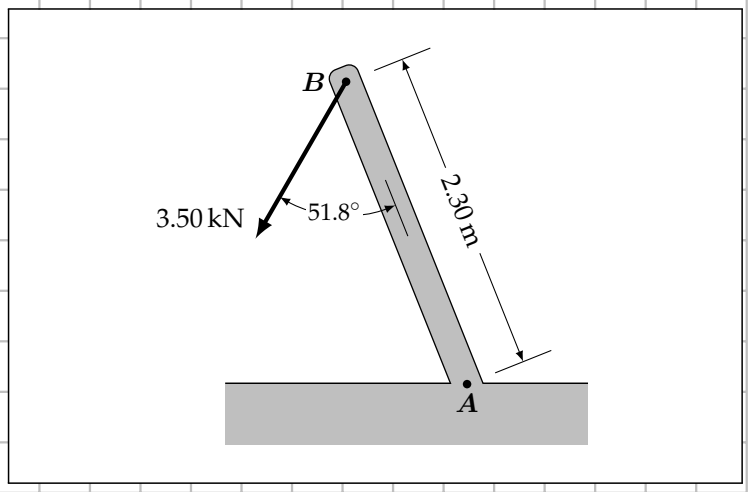
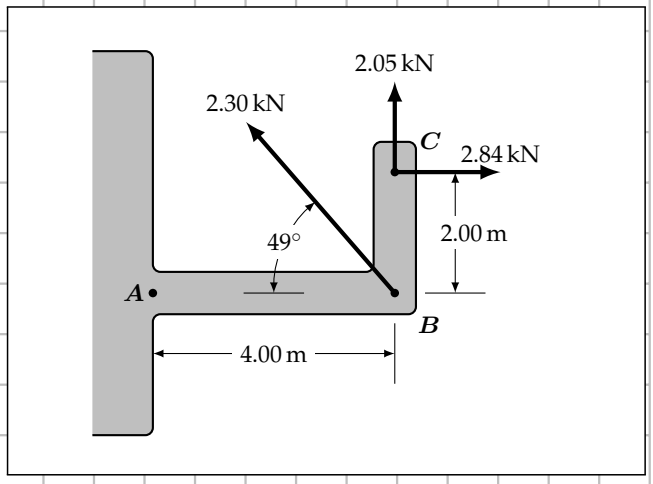
Engineering Statics - 05 Moments

Example 1: Determine the moment, M_A, of the 3.5 kN force applied at B, about the point A.



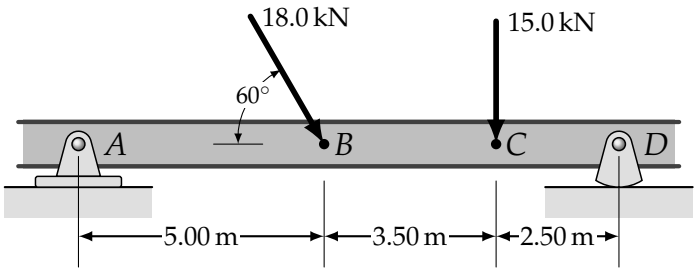
Example 2: Determine the sum of the moments of the forces, acting at B and C, about the point A.

Also, sum the moments of the forces about the point B.



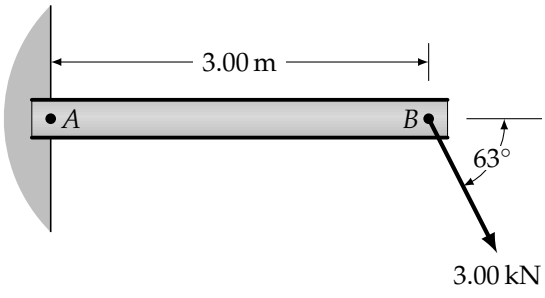
Exercise 1: Rigid beam $ABCD$ is supported at A and at D, and is subjected to the two forces shown at B and C.

Determine the value of the reaction at D, R_D, if the sum of the moments about A, ΣM_A, is zero and the reaction at D is vertically upwards.



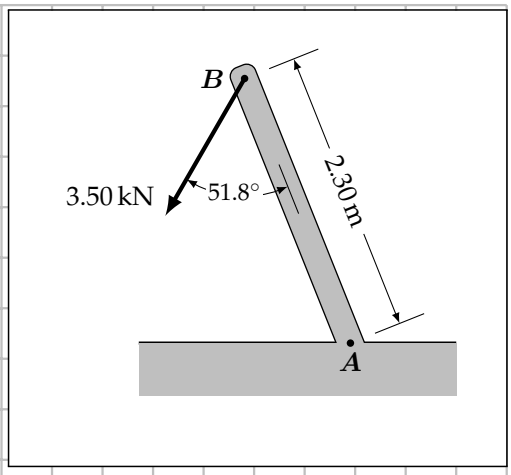
Example 3:

Determine the moment about A of the force applied to B by resolving the force at B into horizontal and vertical components.



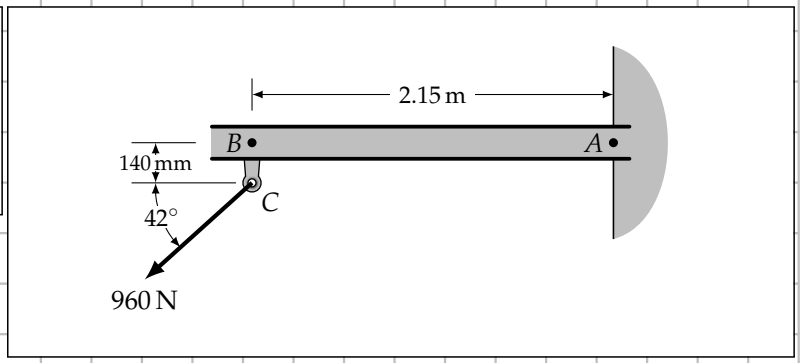
Example 4:

Determine the moment about A of the force at B by resolving the force into components parallel to and perpendicular to AB.



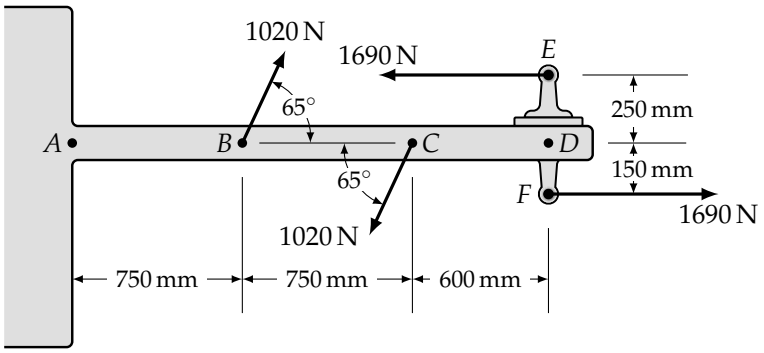
Exercise 2:

Determine the moment about A of the force acting on D. Then determine the moment about B for the same force.



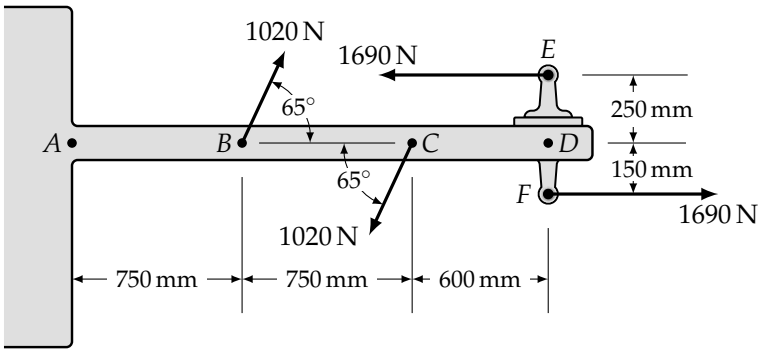
Exercise 3:

Determine the sum of the moments about A, about C and about F of the forces shown.



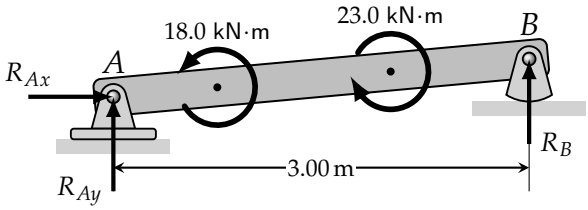
Example 5:

Determine ΣM, the sum of the moments, of the couples shown.



Example 6: Considering beam AB:

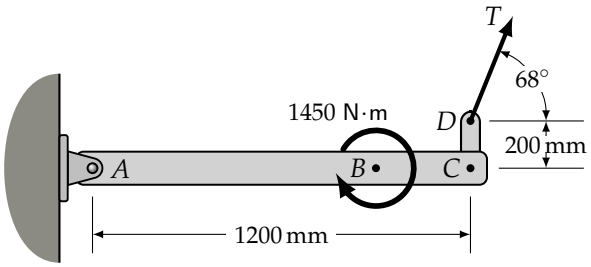
1. Determine the magnitude of R_D if $\Sigma M_A = 0$.
2. Determine the magnitude of R_{Ay} if $\Sigma F_y = 0$.
3. Determine the magnitude of R_{Ax} if $\Sigma F_x = 0$.



Exercise 4:

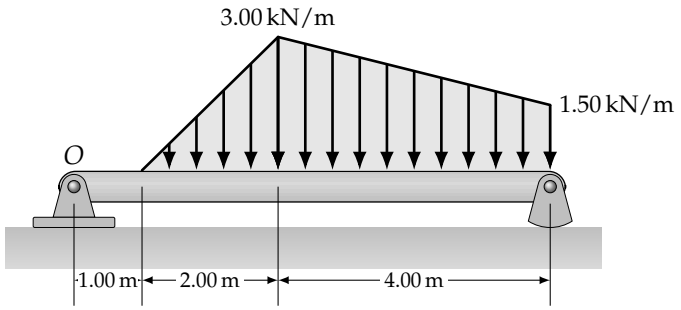
$ABCD$ has a negative couple applied at B and is supported by a cable at D.

1. Determine the magnitude of T if $\Sigma M_A = 0$.
2. Determine the reaction at A if $\Sigma F_x = \Sigma F_y = 0$.



Example 7:

Determine the moment of the distributed load about O.



Exercise 5:

Determine the moment of the distributed load about $(0, 0)$.