Mechanics of rigid bodies 1

Series 1_bis. Statics

Exercise 1

A force of 800 N acts on a bracket as shown in figure 1. Determine the moment of the force about *B*.

Exercise 2

A rectangular plate is supported by brackets at *A* and *B* and by a wire *CD* (Figure 2). If the tension in the wire is 200 N, determine the moment about *A* of the force exerted by the wire on point *C*.

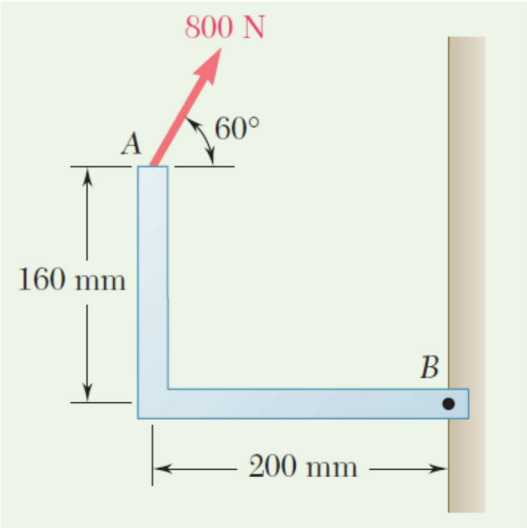

Figure 1

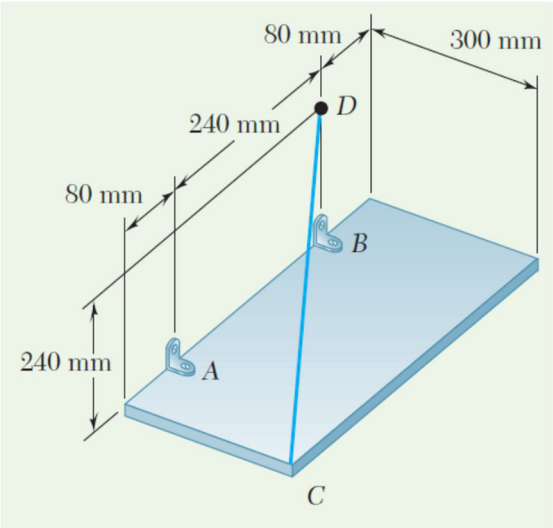

Figure 2

Exercise 3

A 200-N force is applied as shown in figure 3 to the bracket *ABC*. Determine the moment of the force about *A*.

Exercise 4

A cube of side *a* is acted upon by a force **P** along the diagonal of a face, as shown in figure 4.

a) Determine the moment of **P** about *A*, and about the edge *AB*,
b) Determine the moment of **P** and about the diagonal *AG* of the cube.
c) Using the result of part *b*, determine the perpendicular distance between *AG* and *FC*.

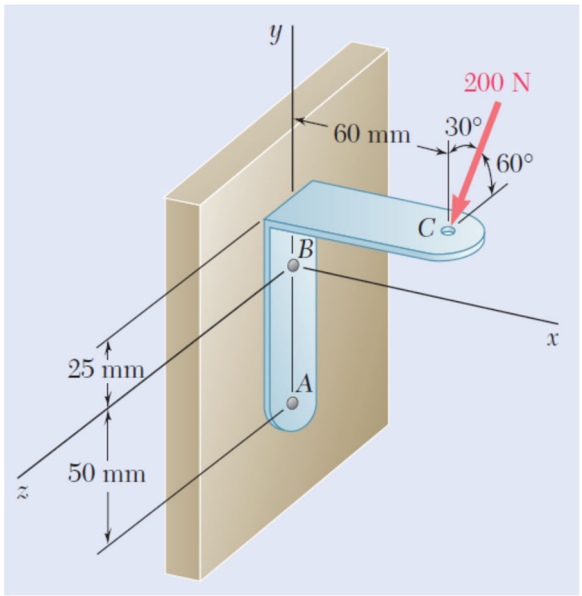

Figure 3

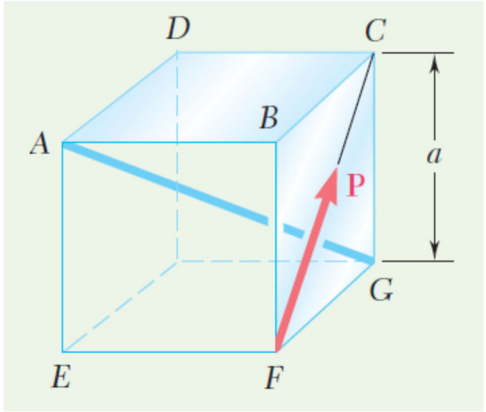

Figure 4