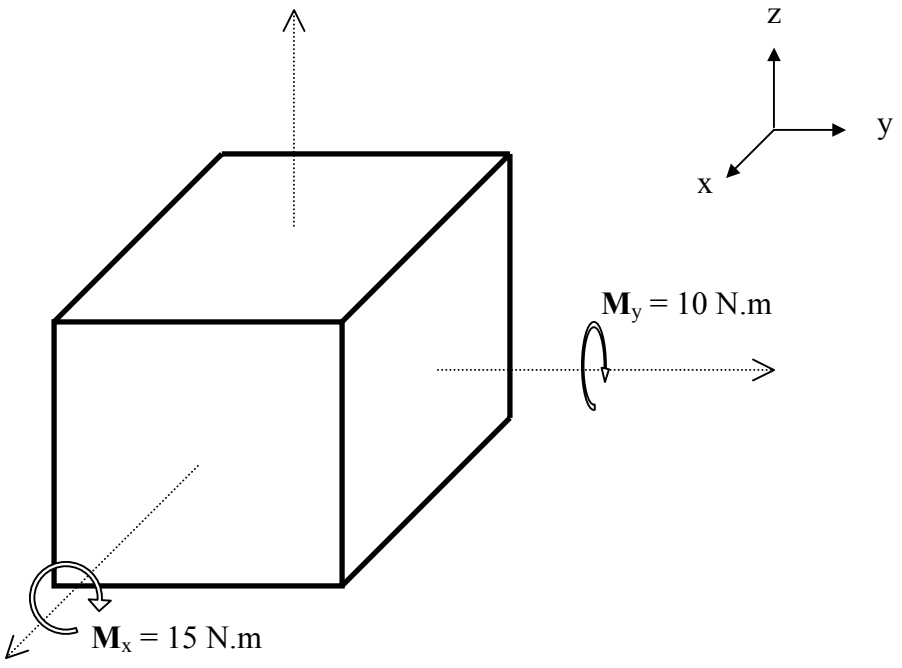
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Department of Mechanical Engineering

2.001 - Mechanics of Materials I
Spring, 2003

Problem Set 1

(Due in one week of its assigned date)

Problem 1 : A small spaceship with an idealized geometry of a cube is shown in the figure below. Rocket boosters on two adjacent faces act such as to produce two moments shown in the figure. The spaceship is equipped with two additional boosters placed in such a way that the resultant moment is zero. The thrust of each additional booster is 10 N. Where would you place these boosters to achieve equilibrium ?
(Although a little complicated, this is one of the few home works where you will see 3D problems, so don't panic !!)



Problem 2 : From Crandall, Dahl and Lardner, 1.12

Problem 3 : From Crandall, Dahl and Lardner, 1.13

Problem 4 : From Crandall, Dahl and Lardner, 1.19

Problem 5 : From Crandall, Dahl and Lardner, 1.25

Problem 6 : From Crandall, Dahl and Lardner, 1.31