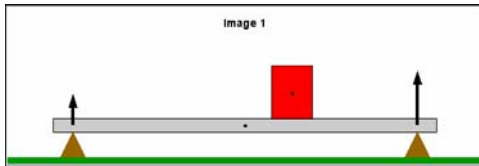


## Worksheet for Exploration 13.3: Distributed Load



A box sits on a board of negligible weight. Two supports exert forces on the left and right ends of the board (**position is given in meters**). The arrows represent the relative sizes of the two force vectors, but their length does not represent their actual magnitudes. [Restart](#).

- a. How does the force of each support on the board depend on where the box is located? You can drag the box from the left to right to view the forces of the supports on the board.
  - i. To answer part a, you should consider net force and net torque on the board.

Suppose the box is exactly half way between the center and the right support.

- b. What is the ratio of the magnitude of the force of the right support on the board to the magnitude of the force of the left support on the board?

Consider a situation where the board has significant weight.

- c. What then might the force vectors look like when the box is sitting above one of the supports, say for example the left support? Check using Animation 2.

- d. What is the ratio of the weight of the board to the weight of the box in this case?