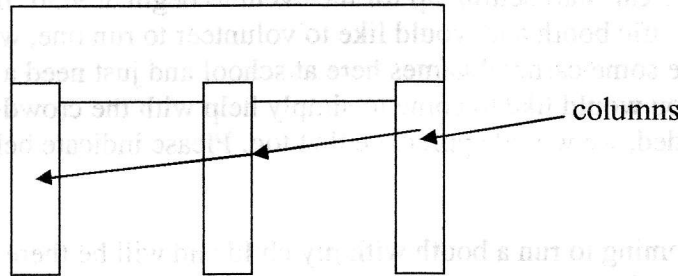


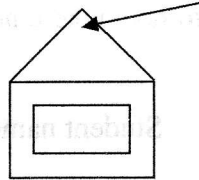
Statics Practice Problem Set

1. Ted the chimpanzee used a rope to suspend himself in the air. If the tension on the rope is 100 N, what is the weight of Ted? What is his mass?
2. A beam is supported equally by 3 columns as shown. If the weight of the beam is 800 N, what is the force exerted by each column?



3. At an art auction, Antoine has acquired a painting that now hangs from a nail on his wall, as shown in the figure. If the painting has a mass of 12.6 kg, what is the tension in each side of the wire supporting the painting?

The wires make an angle of 90° with each other.



4. While moving out of her dorm, Bridget carries a 12-kg box to her car, holding it in both arms.
 - a. How much force must be exerted by each of her arms to support the box?
 - b. How will this force change if Bridget holds the box with only one arm?
5. A wagon which has a weight of 200 N is pulled by a donkey with a horizontal force equal to 500 N, causing the wagon to move with a constant velocity along the rough ground. What is the value of frictional force that opposes the motion?
6. While waterskiing behind his father's boat, Darryl is pulled at a constant speed with a force of 164 N by a rope that makes an angle of 10° with the horizontal. If Darryl has a mass of 65 kg, what is the frictional force between Darryl and the water?
7. A 1000-kg car rests on a ramp that is inclined at 20° above the horizontal. A wall prevents the car from sliding down. Draw the FBD and calculate the force that is exerted by the wall on the car to prevent it from sliding.
8. Randall is standing on a plane inclined at 15° above the horizontal. Randall's mass is 50 kg. What is the friction that is keeping him at rest?