

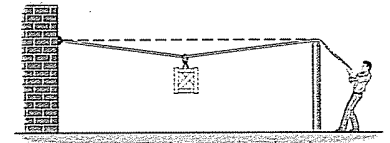
KC's Conceptual Problems

Free Body Diagram

- 1) Imagine sitting in the back seat of a car, looking forward as your friend drives in a straight line. Suddenly he turns the car sharply to the left, and you slide (no seatbelt) to the right-side door, feeling pressed against it through the remainder of the turn. From your perspective it felt like there was a force to the outside of the turn, radially outward. Was there a force radially outward? If so, which one? What are all the forces that acted on you during the turn?

- 2) Is it easier to push down at angle from the horizontal on a lawnmower or pull up from the horizontal at the same angle? Draw a FBD and **explain**.

- 3) A light weight hangs from a ring at the middle of a rope, as the drawing illustrates. Can the person who is pulling on the right end of the rope ever make the rope perfectly horizontal and the system be in equilibrium? Explain your answer in terms of the forces that act on the ring.



- 4) This diagram was found on a major educational website to explain forces acting on a car in motion. What about this diagram is physically incorrect?

