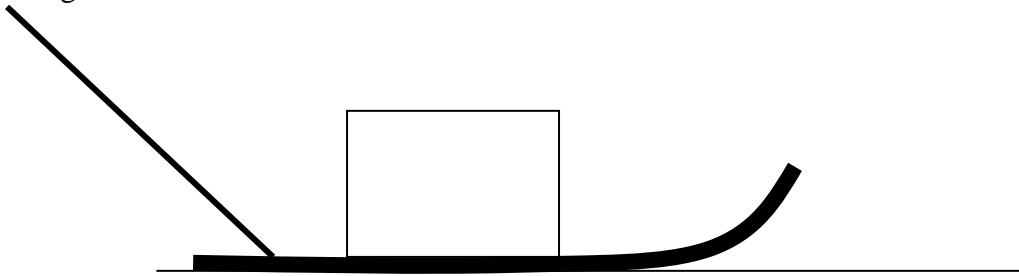


## Prelab 5

You have a 125 kg sled on really nice frictionless ice. There is a string attached to the end of this sled so that you, with your spiky ice boots can pull on the sled. You can decide the angle between the string and the horizontal surface. And there's a fancy "force sensor" to measure the magnitude of the tension force in the string.



You perform three runs of an experiment, measuring the acceleration of the sled and the force you applied. The data is shown in the table below. Every time you ran the experiment you found that you applied the same magnitude of the force in the string. However, you also found that the acceleration was different for each run. From a photo of the first run, it was observed that the angle the stick made with the sled was 15 degrees.

Run	Force	Angle	Acceleration
1	F	15	$0.39 \text{ m/s}^2$
2	F	?	$0.28 \text{ m/s}^2$
3	F	?	$0.20 \text{ m/s}^2$

- 1) How do you account for the "discrepancies" in the acceleration? Explain clearly.
  
  
  
  
  
  
  
  
  
  
- 2) One of the students contends that the force sensor must be broken because the acceleration is different every time. Do you agree or disagree. Explain.