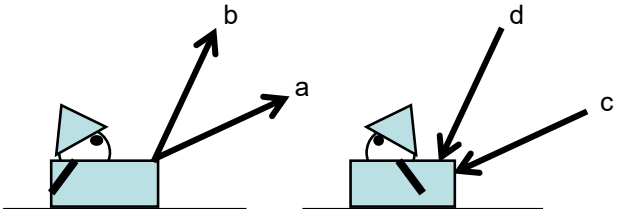
PS#8 Due in Class Tuesday Nov. 12. Please pay good attention to describe the lens you are using and explain your method.

1. Please repeat your assessment #7 in fine form if there are any improvements to be made.

2. 7.0 Exercise 1



3. My daughter is sledding (total mass = 20 kg), and I am applying a force of 120 N to her sled. I have 4 different options (pushing and pulling at two different angles) and I try all of them.
   Make sure to pick a lens and do a good FBD indicating directions.
   a) For each scenario, estimate both the acceleration of the sled and the normal force between the sled and the frictionless snow.
   b) Now, please rank the different force scenarios in order of least acceleration to greatest acceleration. If some accelerations are the same, please indicate that.
   c) Now, let's say that the coefficient of friction of the snow is *actually* 0.2. How does this change things? Please rank again the different force scenarios in order of least acceleration to greatest acceleration.
   d) Have you ever pushed a lawn mower (or watched someone do it)… you are using force scenario d, pushing along the handle. When you run into some thick grass the "coefficient of friction" might be high enough to stop you cold. What scenario can you change to, and why does this work?

   **** Make sure to consider the direction of acceleration to inform your choice of axis. Do you remember how to pick a good axis?

4. Please do exercise #1 in section 7.1: pulling child in sled with energy considerations.

5. Exercise #2 in section 7.1: Torque Wheel

6. Exercise #3 in section 7.1: Tension in cable holding sphere. NOTE: the pole has very little mass….
   Question – if the pole has a mass of 10 kg also, how would this alter your solution?

7. Exercise #4 in section 7.1: Collision on ice

8. Please do Exercise #4 in 7.0: Throwing a rock off a cliff.