1) *Playground Slide*. A perfectly straight playground slide is 3 meters tall and makes an angle of 55° with the horizon. A 38 kg child begins to slide down from the top. If the coefficient of friction between the child and the slide is 0.2, find the net force on the child.
2) *Heavenly Sports.* You throw a 0.150 kg baseball from shoulder height (1.25 m) on the surface of Jupiter with surface gravitational acceleration of $g_J = -25.9 \text{ m/s}^2$. You throw parallel to the ground with an initial speed of 45 m/s. How far does the baseball travel?
3) Table Pulley. A 10 kg mass sits on a table connected by a rope to a hanging 0.5 kg mass.

What will the acceleration be of the mass on the table if it is frictionless?
4) **Pulley Fun.** A 200 kg crate is suspended in by the following pulley system with you holding the left end of the rope.

a. What is the tension in the rope?

b. What is the total force of the three pulleys on the ceiling?