PHY121 Summer 2018
Pre-work for Tuesday 5/29

1. For each of the following situations, describe the paths of the objects after collision (feel free to draw each object with its final velocity):

   (a) Two cars of mass m with equal and opposite velocities v collide.

   (b) One car of mass m and one car of mass $2m$ with equal and opposite velocities v collide.

   (c) One car of mass m and velocity v hits another car of mass m at rest.

   (d) One car of mass $2m$ and velocity v hits another car of mass m at rest.

   (e) One car of mass m and velocity v hits another car of mass $2m$ at rest.

   (f) One car of mass m and velocity v hits another car of mass m with velocity $-2v$.

   (g) One car of mass $2m$ and velocity v hits another car of mass m with velocity $-2v$.

   (h) One car of mass $3m$ and velocity v hits another car of mass m with velocity $-v$.

2. Locate the center of mass of the Earth-Moon system as measured from the center of the Earth.

3. Four objects are situated along the y axis as follows: a 2 kg object is at 3 m, a 3 kg object is at 2.5 m, a 2.5 kg object is at the origin, and a 4 kg object is at -0.5 m. Where is the center of mass of these objects?