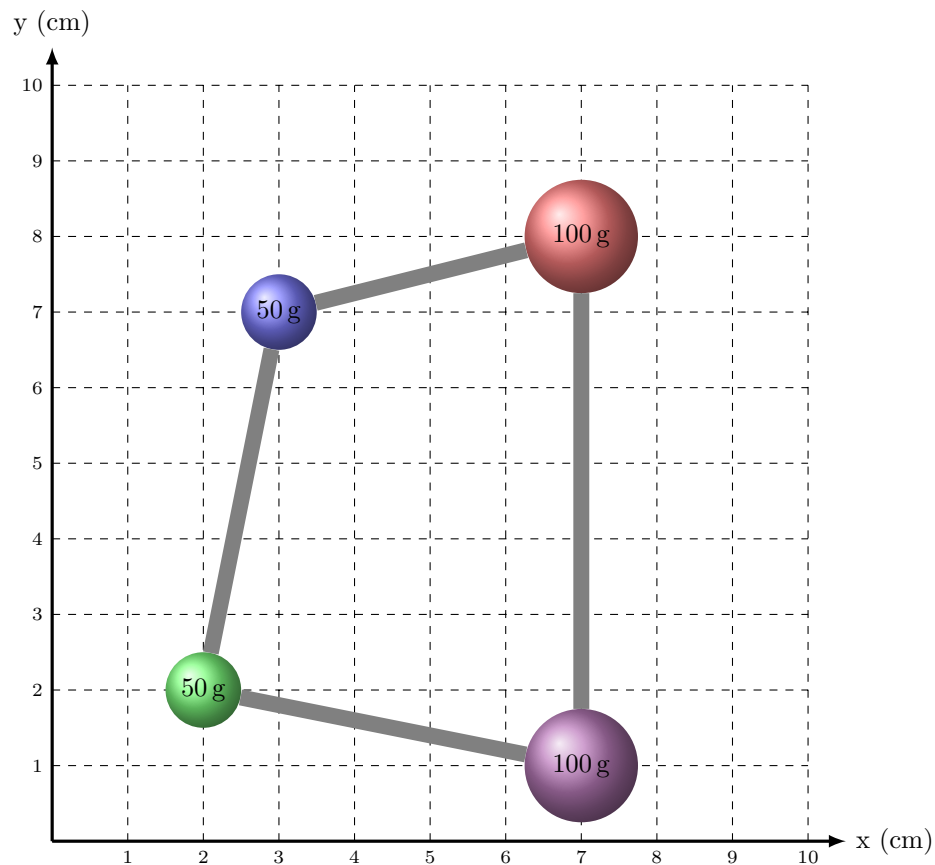


Please answer the questions below to the best of your ability either in the space provided. Everything should be scanned or photographed and submitted through [gradescope.com](https://www.gradescope.com). See instructions for getting added to the gradescope class.

**Objective:** *I can find the moment of inertia for a point mass system rotating about some axis.*

**Objective:** *I can determine the rotational energy in a system.*

1. You have purchased a new dog toy that looks like the below image. The connecting pieces have negligible mass compared to the masses at the corners. You toss the toy straight up at 10 m/s and such that it is spinning about its center of mass at 30 rad/s.



- (a) Where is the center of mass of the toy located at as shown in the above image?

(b) What is the moment of inertia of the dog toy if it is rotating clockwise about that center of mass?

(c) What is the total kinetic energy of the system the moment the toy leaves your hand?

(d) What is the total kinetic energy of the system when the toy is at the peak of its flight?