

Name: _____

Class: _____

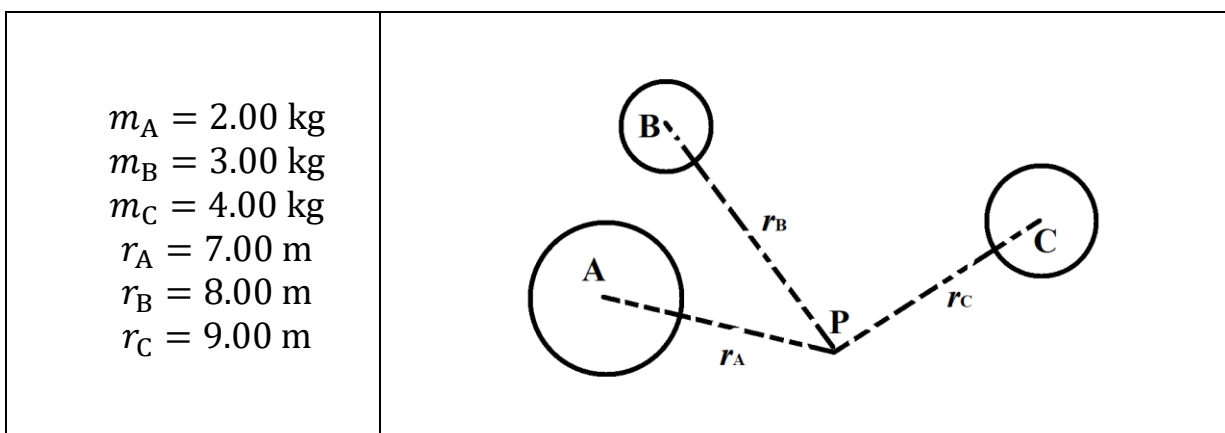
Due Date: _____

Physics Topic 20B – Moment of Inertia

Answer the following questions. The solutions to this worksheet can be found on the YouTube channel Go Physics Go.

1. C: Define, state the equation, define each variable, and give the units for the *moment of inertia* I . What is the *moment of inertia* I equivalent to in translational motion?

2. E: Determine the moment of inertia of three objects rotating around a point P. Treat the three objects as point masses.



3. What is the moment of inertia of a wheel shaped like a ring which has a radius of 34.0 cm and a mass of 4.50 kg? The moment of inertia of a ring is given by the equation $I = MR^2$.
4. What is the moment of inertia of a 2.50 kg sphere which has a radius of 6.00 cm? The moment of inertia of a sphere is given by the equation $I = \frac{2}{5}MR^2$.
5. What is the moment of inertia of a disc which has a mass of 4.40 kg and a radius of 45.0 cm? The moment of inertia of a disc is given by the equation $I = \frac{1}{2}MR^2$.
6. The Earth has a mass of 5.98×10^{24} kg and an average radius of 6.37×10^6 m. Assuming that the Earth is a uniform sphere (which it is not!) what is the moment of inertia of the Earth?