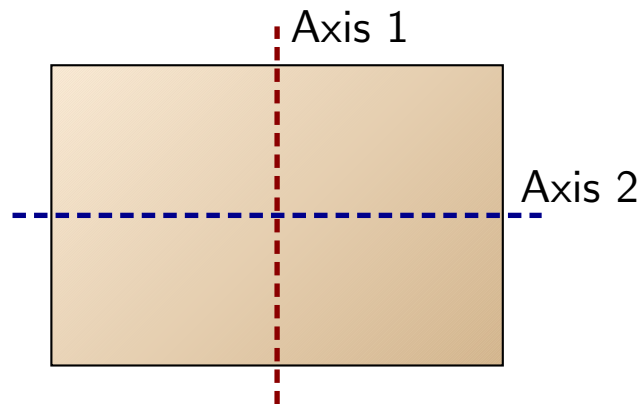# Warm Up Question 1

Two identical meter sticks rotate about different pivot points. For one the pivot point is in the center of the meter stick, for the other the pivot is at one end of the meter stick. How do the moments of inertia about the pivot compare (same, one is larger, one is smaller,...)? Explain your answer.

1. Larger for pivot at end. Mass is further away.

2. Larger for pivot at one end. This will give $MR^2$. For pivot in center $\frac{1}{4}MR^2$.

3. Same for both. Same mass and radius.

# Question 1

A rectangular piece of brass can rotate about two possible axes through its center. The mass in the brass is uniformly distributed.



Which of the following is true for the moment of inertia about these axes?

1. They are the same.

2. The moment of inertia about 1 is larger than about 2.

3. The moment of inertia about 1 is smaller than about 2.

# Warm Up Question 2

Two pulleys are oriented with their axes pointing horizontally (the plane of the pulley is vertical). A string is wrapped around the edge of each pulley and the same mass is suspended from the string. The suspended mass is released and the string unwinds without slipping. Pulley A has a smaller radius and a larger mass. Pulley B has a larger radius and a smaller mass. They have the same moment of inertia. Is the acceleration of the mass suspended from pulley A larger than, smaller than or the same as that for pulley B? Ignore air resistance and friction. Explain your answer.

1. Smaller for A. Lower torque since $r$ is smaller.

2. Smaller for A. Larger moment of inertia.

3. Same. Same moment of inertia.

4. Larger for A. It has a larger mass.