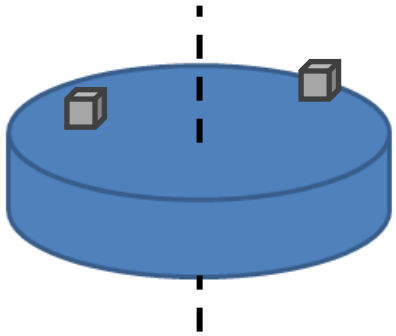
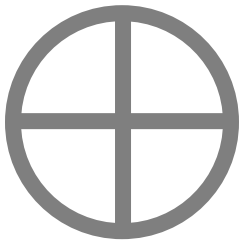
EXAMPLE: MOMENT OF INERTIA / DISC WITH MASSES

EXAMPLE**:** The solid disc below has radius 4 m and mass 10 kg. Two small objects are placed on top of it. The object on the left has mass 2 kg and is placed half way between the disc's center and its edge. The other object has mass 3 kg and is placed at the edge of the disc. Calculate the system's (disc + masses) moment of inertia around the disc's central axis**.**



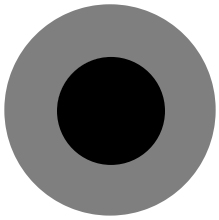
PRACTICE: MOMENT OF INERTIA / HOOP WITH RODS

PRACTICE**:** You build a wheel out of a thin circular hoop of mass 5 kg and radius 3 m, and two thin rods of mass 2 kg and 6 m in length, as shown below. Calculate the system's moment of inertia about a central axis, perpendicular to the hoop**.**



PRACTICE: MOMENT OF INERTIA / COMPOSITE DISC

PRACTICE**:** A composite disc is built from a solid disc and a concentric, thick-walled hoop, as shown below. The inner disc (solid) has mass 4 kg and radius 2 m. The outer disc (thick-walled) has mass 5 kg, inner radius 2 m, and outer radius 3 m. Calculate the moment of inertia of this composite disc about a central axis perpendicular to the discs**.**



PRACTICE: MOMENT OF INERTIA / EQUILATERAL TRIANGLE

PRACTICE**:** Three small objects, all of mass 1 kg, are arranged as an equilateral triangle of sides 3 m in length, as shown. The left-most object is on (0m, 0m). Calculate the moment of inertia of the system if it spins about the **(a)** X axis**; (b)** Y axis**.**