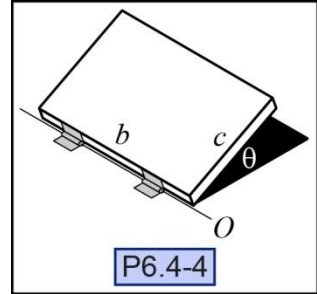**P6.4-4)** The trapdoor shown is installed in a horizontal floor. What angle θ must the trapdoor be released from in order for the acceleration of its center of mass to be $g/2$, where g is the acceleration due to gravity?

Given:

Find:

Solution:

| **Draw a free-body diagram of the door.** | **Use the door's equation of motion and kinematic relationships to determine the angle.** |

Calculate the mass moment of inertia.

What is your reference point?

I = _____

θ = _____