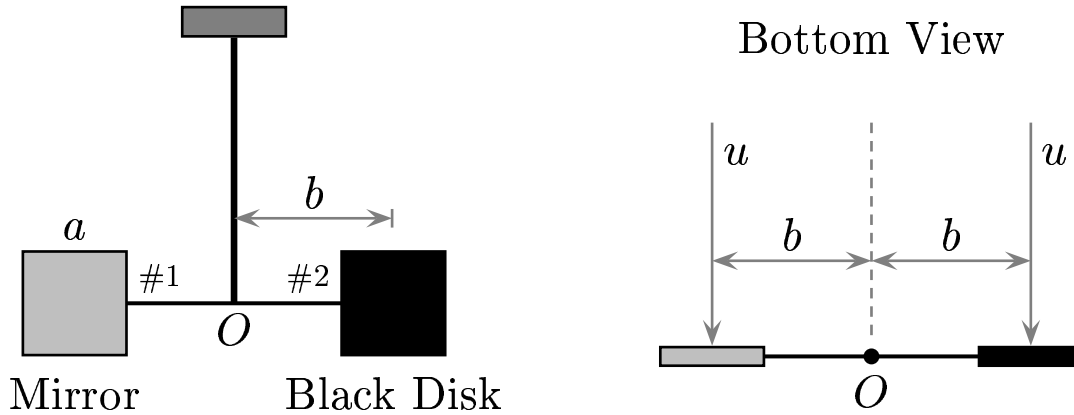


Two squares with identical mass m , and area of $a \times a$. As indicated in the sketch, #1 is totally reflective and #2 totally absorptive. A light with an energy density u is striking both surfaces perpendicularly.



Find the direction of the torque τ about O as viewed from the bottom.

- A) The direction viewed from the bottom is clockwise.
- B) The torque about O is $p = 0$, so $\tau = 0$, the direction can not be determined.
- C) The direction viewed from the bottom is counterclockwise.

The torque due to the reflection of the mirror about O is $\tau_1 = F_1 b = 2 P a^2 b = 2 u a^2 b$. The torque due to the reflection of the black disk about O is $\tau_2 = F_2 b = P a^2 b = u a^2 b = \frac{\tau_1}{2}$. Thus the torque from the mirror is greater, or the net torque is counterclockwise as viewed from the bottom.

Answer **C**.