Consider a letter “C”, which is obtained by cutting a large square plate of \((2a \times 2a)\) by an \((a \times a)\)-square. See the sketch.

Determine the \(x\)-coordinate of the center of mass, \(x_{cm}\).

A) \(x_{cm} < a\).
B) \(x_{cm} = a\).
C) \(x_{cm} > a\).

With the hole, we expect the \(x\)-coordinate of the center of mass to be less than \(a\), which is the location of the center of mass when there is no hole. Answer B.