**PROBLEM:**
*Construct a square with the same area as an a×b rectangle.*

First, make a segment of length $a + b$ by constructing a circle of radius $b$ as shown.

Now construct a semicircle on this segment and construct a perpendicular segment as shown.

This segment’s length is $\sqrt{ab}$ (see AM-GM Inequality problem), so we just need to construct a square with this segment as one of its sides.

This square’s area is $ab$, the same as the area of the rectangle.