A right triangle has a hypotenuse of length $h$, and inscribed circle of radius $r$. What is its area?

**Solution:** The triangle has area $r(h + r)$.

From the picture we find that $|AH| = |AA'| = b - r$ and that $|BH| = |BB'| = a - r$. Hence $h = |AH| + |BH| = (b - r) + (a - r)$. Now the area of the triangle is the area of the lower left square plus the areas in the four other triangles:

$$
\text{Area} = \text{area}(\square CA'OB') + 2 \times \text{area}(\triangle AA'O) + 2 \times \text{area}(\triangle BB'O)
$$

$$
= r^2 + r(b - r) + r(a - r) = r^2 + rh
$$