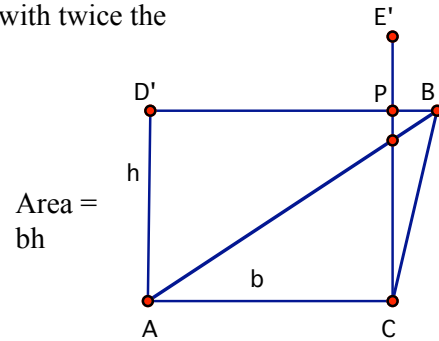
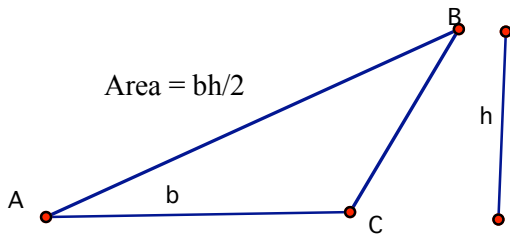
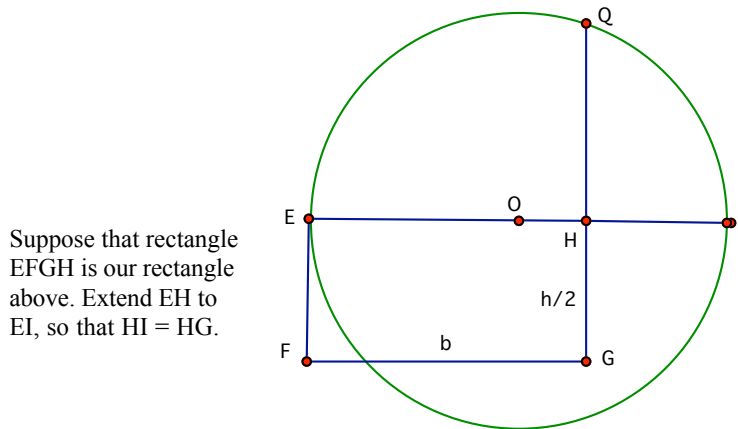


Construction of a square with area that of a given triangle

Given triangle ABC, draw perpendicular lines AD' and D'B and CE' meeting D'B at point P to get a rectangle, AD'PC, with twice the area of triangle ABC



Now bisect AD' to get a rectangle of area one-half bh



Suppose that rectangle EFGH is our rectangle above. Extend EH to EI, so that HI = HG.

Bisect EI at O and draw circle with center O and radius OE. Extend line GH up to Q. The square with side HQ has area $bh/2$, as desired.

The triangle EHQ is similar to the triangle OQI, because both are right triangles and angle EQI is inscribed in half a circle and so is a right angle. This means that angle EQH equals angle QIH and angle HEQ equals angle HQI.

So $EH/HQ = HQ/HI$, so $bh/2 = FG \times GH = EH \times HI = HQ \times HQ$.