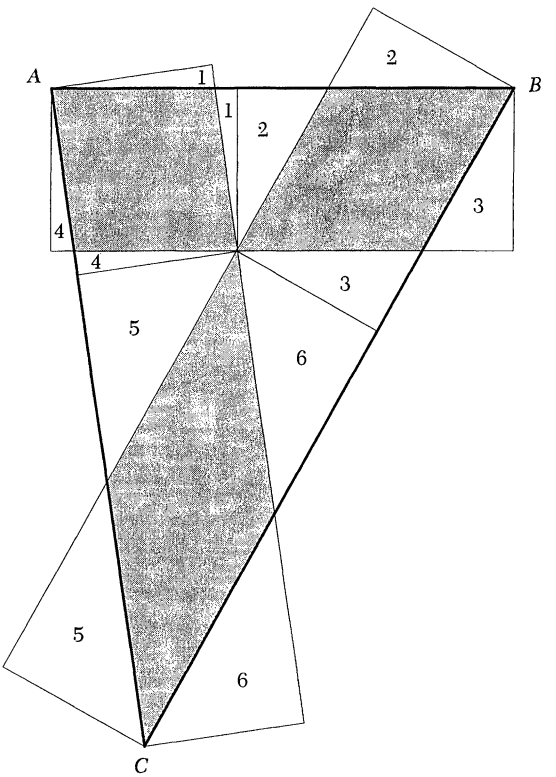
## Proof Without Words: The Product of the Perimeter of a Triangle and Its Inradius Is Twice the Area of the Triangle




Regions bearing the same number are equal in area.

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# Revisiting an Old Favorite: $\zeta(2m)$

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In this note, we present a new proof of the following result due to Chen **[6]**, namely:

$$\zeta(2m) = a_m \pi^{2m}$$

where the $a_m$ are rational numbers given recursively by:

$$\sum_{j=1}^{m} \frac{(-1)^{j-1} a_j}{(2m+1-2j)!} = \frac{m}{(2m+1)!}.$$

Our method uses the Fourier expansion of $x^{2m}$ on $[-\pi, \pi]$, integration by parts, and a fortuitous opportunity to interchange the order of a double summation. The steps are outlined below.