SERGE D'ALESSIO AND IAN VANDERBURGH, Faculty of Mathematics, University of Waterloo

Chasing Imaginary Triangles

This presentation concerns right-angled triangles. In particular, we are interested in computing the length of its hypotenuse (h) given the triangle's perimeter (P) and area (A). One method of determining h involves the formula:

$$h = \frac{P^2 - 4A}{2P}.$$

However, as we will demonstrate, this formula can lead to an incorrect result. To resolve this a condition between A and P was derived that dictates when the above formula can be used. Other interesting issues surrounding right-angled triangles will also be explored along the way.