

Investigate & Prove Special Triangle Angles * Page (1)

The Investigation of Three Lines and the Progressive Points of Intersection is an Intuitive and Creative Thinking Activity which is appropriate. Vertical Angles, Supplementary Angles, Sum of Angles of a Point, Interior Angles

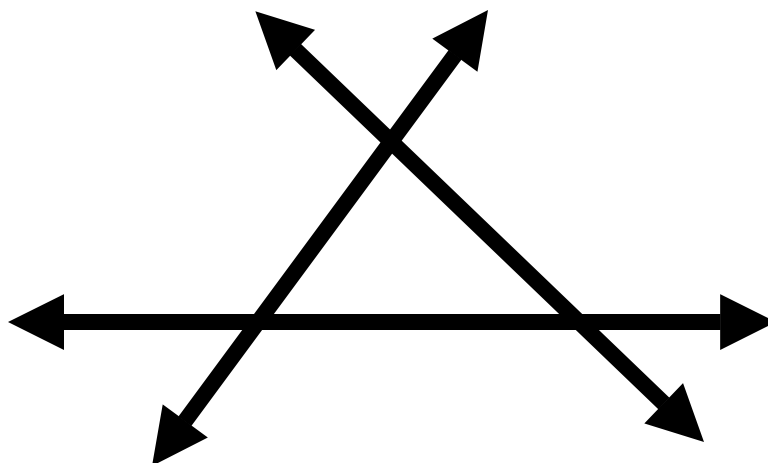
Start by creating an appropriate and usually full page Scalene Triangle. Make sure it is centered on the Page and has extending sides. Review the previously provided Protractor Game for Interactive Practice. The Virtual Protractor Game is an Amazing and Valuable Activity.

Investigate the (4) Angles at the Top of the created Scalene Triangle. Make sure you measure all (4) and determine the sum of all (4). Next, Investigate pairs of angles which form Supplementary Angles.

There should be (4) pairs of Supplementary Angles and check all (4)! Now, select another vertex and complete this investigation again.

Finally, investigate the (3) Interior Angles and measure them very carefully! This activity is a common and important one in Plane Euclidean Geometry. Once you have carefully measured all (4) angles then determine the sum!

This final activity is an Informal Proof that the Sum of the Interior Angles = 180°



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A well established Geometry Proof is that the Sum of the Interior Angles of any and all Triangles added together is equal to 180 degrees!

$$\text{Sum of the Interior Angles } \angle A + \angle B + \angle C = 180^\circ$$

How could you prove or convince someone that this statement about the Sum of the Interior Angles of All Triangles is true?

What sort of evidence could you provide to validate this Statement:

The Sum of the Interior Angles equal 180° ?

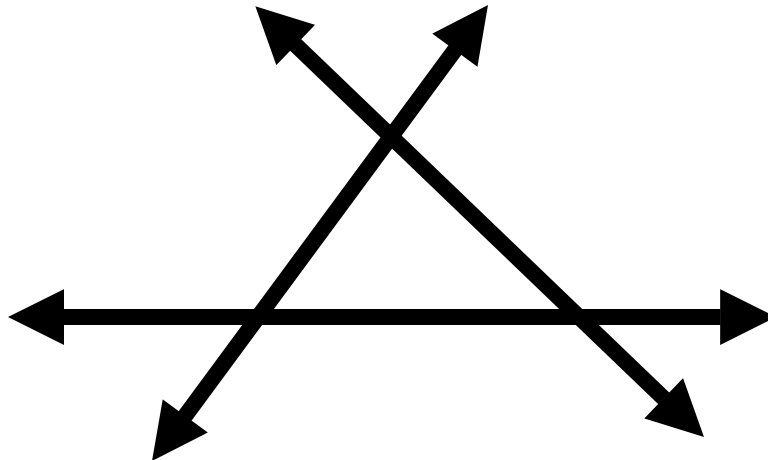
Maybe we could, using a ruler, draw a large triangle on a piece of paper and use a protractor and carefully measure the interior angles!

Let's do it! Very carefully draw the lines! Very carefully measure the angles!

What if we only come close but not exactly 180° ? Be Fair in your measures!!!

What if we did it more than one time? Or if we did it many, many times? Also, Over & Over again! What type of Reasoning or Convincing might this be? Is this type of Reasoning or Convincing an acceptable and established way to prove?

Complete this investigation as described and submit a detailed written summary of your creation, measurements, results, and reflection!



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Investigate & Prove Special Triangle Angles * Page (3)

A well established Geometry Proof is that the Sum of the Interior Angles of any and all Triangles added together is equal to 180 degrees!

$$\text{Sum of the Interior Angles } \angle A + \angle B + \angle C = 180^\circ$$

How could you prove or convince someone that this statement about the Sum of the Interior Angles of All Triangles is true?

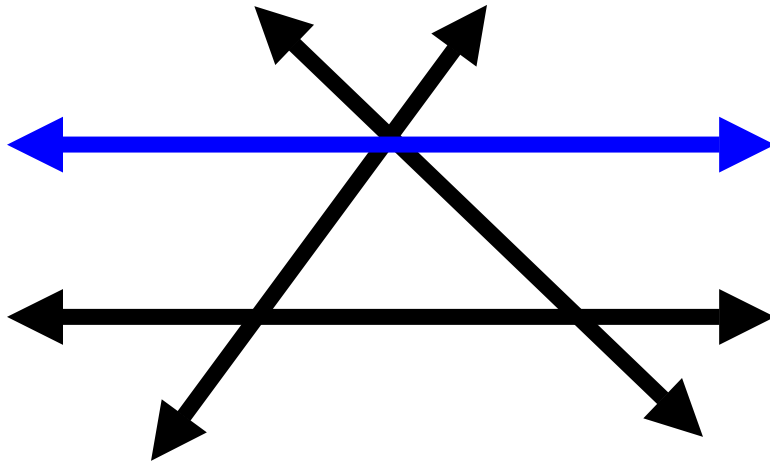
What sort of evidence could you provide to validate this Statement:
The Sum of the Interior Angles equal 180° ?

Maybe we could, using a ruler, draw a large triangle on a piece of paper then from knowledge of previous Geometry activities we know, angles making up a Straight Line are equal to 180° angles!

Using a ruler draw a straight line through the top vertex of the triangle that is parallel to the base line. Carefully note the example below!

What if we only come close but not exactly 180° ? Be Fair in your measures!!!

Since, we were given previous knowledge of Geometry Supplementary Angles = 180° Experts of Mathematics agree on this given! What type of Reasoning might this be? Is this type of Reasoning or Convincing a acceptable and established way to prove?



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