Student Project

The triangle area formula by doubling right triangles

Goal: Students will design and deliver a demonstration of the triangle area formula, presupposing knowledge and understanding of the manner of computing the area of a rectangle.

Part I. The purpose of this part is to develop a personal understanding of the mathematical ideas.

    A. Demonstrate that a right triangle can be combined with a copy of itself to make a rectangle. From this, derive the triangle area formula for right triangles.

    B. Demonstrate the triangle area formula for triangles in which the altitude meets the base by using the altitude to cut the triangle into two right triangles.

    C. Demonstrate the triangle area formula for triangles in which the altitude does not meet the base.

Part II. Determine the mathematical definitions and propositions that your demonstration in Part I used. Prepare a "pretest" that can be used to determine if an audience understands these terms and facts.

Part III. Prepare a five-minute talk with visuals that can be used to deliver your findings from Part I to an audience that has passed your pretest.

Part IV. As the culmination of this project, a member of your team selected at random will deliver this talk to the class.