

Transforming my View about Reasoning and Proof in Geometry

1. Area of Quadrilaterals

“In a quadrilateral at least one diagonal cuts the area in half”

- a. Check your conjecture with Kite, Square, Rhombus, Parallelogram, and Rectangle. Does this conjecture hold true for these quadrilaterals?
- b. Will this conjecture hold true for all quadrilaterals?
- c. What if the quadrilateral is a generic quadrilateral?
- d. What if the quadrilateral is a trapezoid?

Work on the exploration and write down some points to take away.

1. Notes about Reasoning and Proof How can it help foster Reasoning and Proof?	
2. Notes about van Hiele Levels How may students at different level tackle the activity?	
3. Connections to CCSSM What are some related standards?	

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2. Reflecting a Triangle across its Sides

- e. Consider a scalene triangle. Reflect the triangle across its sides. What shape is formed?
- f. What if the triangle is an isosceles triangle?
- g. What if the triangle is an equilateral triangle?

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3. Rotating Triangles

- h. Consider a right triangle. Rotate it 180 degrees through the midpoint of its hypotenuse
 - i. What figure is formed by the object and its image?
 - j. Do you believe the same type of quadrilateral will be formed if you rotated other triangles?
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4. Connecting Consecutive Midpoints of the Sides of Quadrilaterals

- k. Consider a generic quadrilateral. Make a shape by joining consecutive midpoints of its sides. What shape is formed?
- l. What if the quadrilateral is a rectangle?
- m. What if the quadrilateral is a kite? Rhombus? Square?

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