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Creating quadrilaterals from quadrilaterals.

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Summary: A part of high school geometry is devoted to the study of parallelograms in the context of proving some of their properties using congruent triangles. The typical high school geometry book's chapter on quadrilaterals focuses on parallelograms (e.g., their properties, proving that a given quadrilateral is a parallelogram, and special parallelograms) with an additional section about trapezoids and kites. Wayne Nirode wanted to go beyond what is required by the Common Core State Standards for Mathematics and what is in the usual textbook chapter on quadrilaterals and give students the opportunity to pose and investigate their own questions about quadrilaterals. Here he describes a project in which students created rules to form a new quadrilateral starting from a special quadrilateral: parallelogram, rhombus, rectangle, square, kite, trapezoid, isosceles trapezoid, and cyclic quadrilateral. They used Dynamic Geometry Software (DGS) to construct, explore, and conjecture; and, last, they proved their conjectures either synthetically or analytically. (ERIC)

Classification: G40

Keywords: geometry; geometric concepts; quadrilaterals; activities

<http://www.nctm.org/Publications/Mathematics-Teacher/2016/Vol109/Issue8/Creating-Quadrilaterals-from-Quadrilaterals/>