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PERIOD

Student Task Statements

Lesson 15: Congruence for Quadrilaterals

15.1: True or . . . Sometimes True?: Parallelograms

Given that *ABCD* is a parallelogram.

- 1. What must be true?
- 2. What could possibly be true?
- 3. What definitely can't be true?

15.2: Floppy Quadrilaterals

Jada is learning about the triangle congruence theorems: Side-Side-Side, Angle-Side-Angle, and Side-Angle-Side. She wonders if there are any theorems like these for parallelograms.

1. If 2 parallelograms have all 4 pairs of corresponding sides congruent, do the parallelograms have to be congruent? If so, explain your reasoning. If not, use the tools available to show that it doesn't work.



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2. In parallelograms *ABCD* and *EFGH*, segment *AB* is congruent to segment *EF*, segment *BC* is congruent to segment *FG*, and angle *ABC* is congruent to angle *EFG*. Are *ABCD* and *EFGH* congruent? If so, explain your reasoning. If not, use the tools available to show that it doesn't work.



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15.3: Make Your Own Congruence Theorem

Come up with another criteria that is enough to be sure that 2 parallelograms are congruent. Try to use as few measurements as you can. Be prepared to convince others that your shortcut works.

Are you ready for more?

- 1. Will your rule work for any quadrilateral, not just parallelograms?
- 2. If it does, justify your rule. If it doesn't, adjust your rule so it works for any quadrilateral and justify your new rule.