TI-nspire™

Grade level: 9-12
Subject: Geometry
Time required: 45 minutes

Investigating the Properties of a Parallelogram

by – Christopher Bergersen, Peter Crisci, and Brittany Zweibel

Activity overview

In this activity, students will discover the properties of a parallelogram. Students will measure various components of a parallelogram to make conjectures about its properties.

Teacher preparation

- *This activity is designed for a high school geometry classroom.*
- *Students need to be familiar with the following terms: alternate interior angles, bisect, opposite angles, opposite sides, parallel lines, and slope.*
- *This activity can be used as an introduction to the properties of a parallelogram or as a refresher for proofs involving parallelograms.*

Classroom management tips

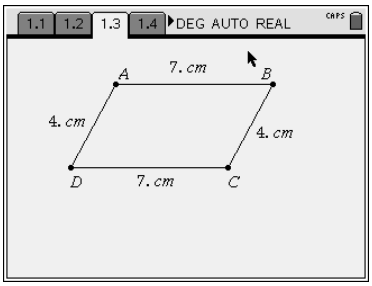
- *This activity is teacher-led.*
- *Emphasize the importance of students not working ahead. Otherwise, it may be difficult to troubleshoot their errors.*
- *It is sometimes helpful for students to work with a partner.*

TI-Nspire Applications

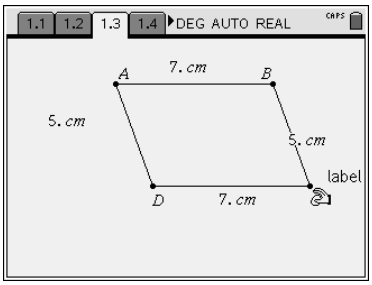
Graphs & Geometry, Notes

Step-by-step directions

1. On page 1.3, measure the lengths of the sides of the parallelogram using the measurement tool.



Students can now drag point *C* and watch the lengths of the sides as the shape of the parallelogram changes. Have students sketch the resulting diagram after dragging point *C*. Students should make note of any observations and record them on their activity sheet. As a class, form a conclusion based on their observations.



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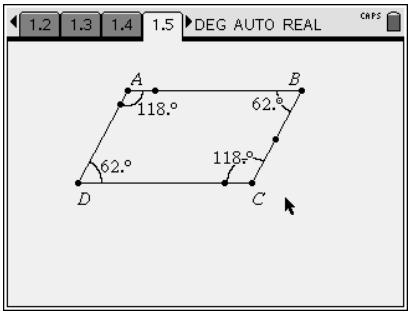
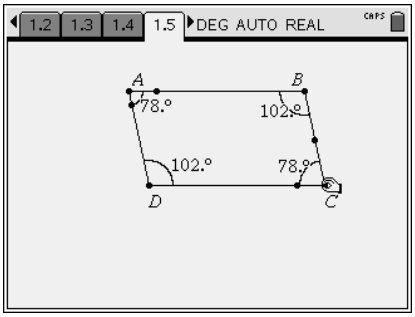
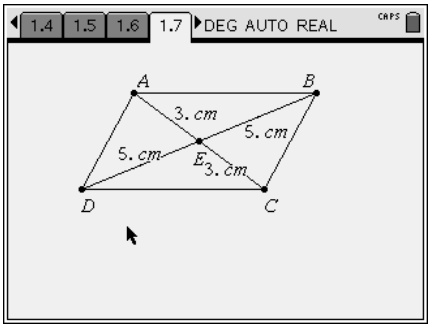
2. On page 1.5, measure the missing angles of the parallelogram using the measurement tool.



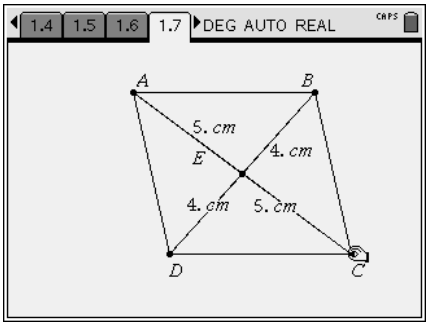
Students can now drag point *C* and watch the measures of the angles as the shape of the parallelogram changes. Have students sketch the resulting diagram after dragging point *C*. Students should make note of any observations and record them on their activity sheet. As a class, form a conclusion based on their observations.



3. On page 1.7, measure the lengths of segments AE, CE, BE, and DE using the measurement tool.



Students can now drag point *C* and watch the lengths of the segments of the two intersecting diagonals as the shape of the parallelogram changes. Have students sketch the resulting diagram after dragging point *C*. Students should make note of any observations and record them on their activity sheet. As a class, form a conclusion based on their observations.



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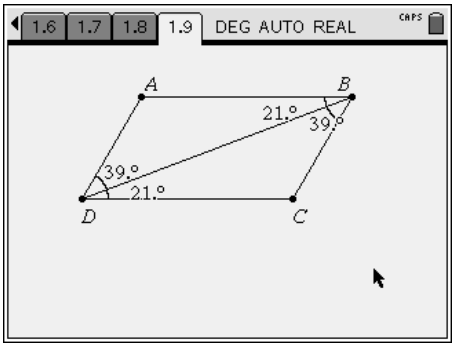
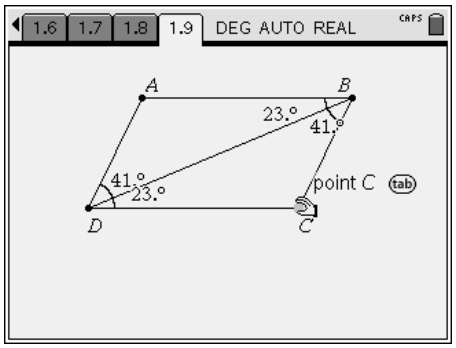
4. On page 1.9, all necessary measurements are given. The purpose of this page is for the students to discover that parallel lines cut by a transversal form congruent alternate interior angles.



Students can now drag point *C* and watch the measures of the angles as the shape of the parallelogram changes. Have students sketch the resulting diagram after dragging point *C*. Students should make note of any observations and record them on their activity sheet. As a class, form a conclusion based on their observations.



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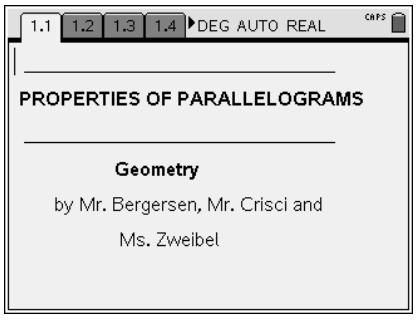
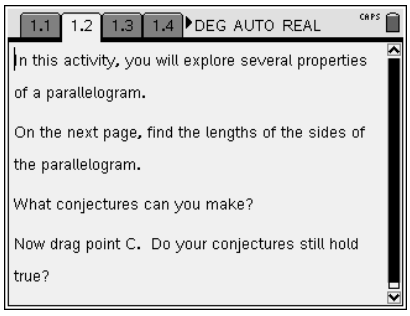
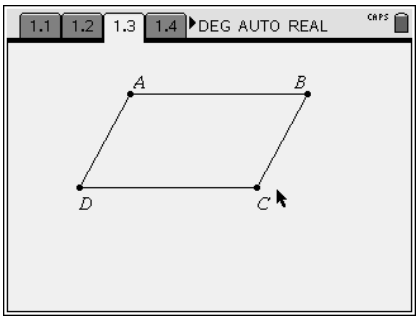
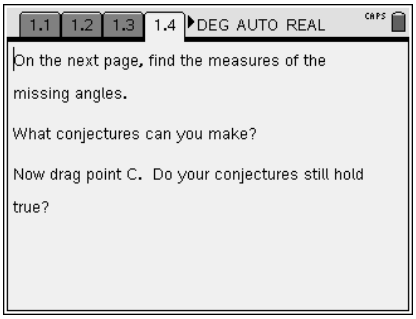
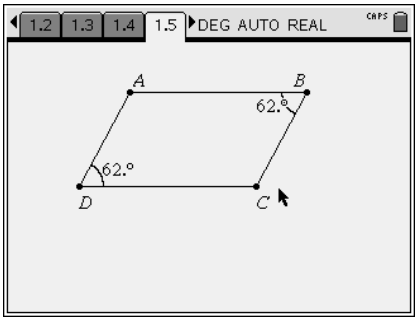
Student TI-Nspire Document
TI-Nspire File: *geo_intro2parallelograms.tns*

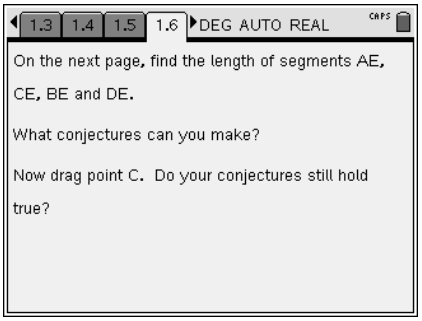


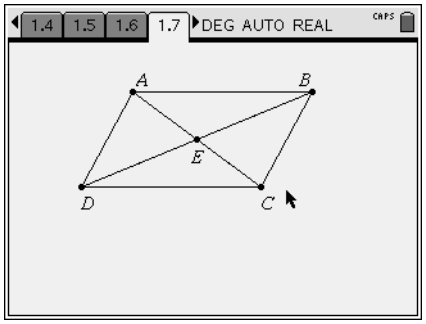


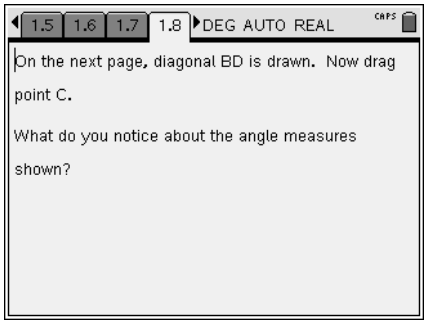


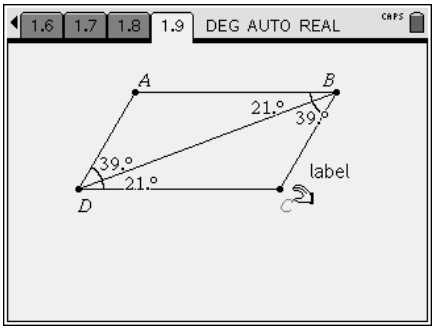












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