Rhombi, Kites, and Trapezoids

ID: 12096

Time Required
45 minutes

Activity Overview

In this activity, students will discover properties of the diagonals of rhombi and kites and properties of angles in rhombi, kites, and trapezoids.

Topic: Quadrilaterals & General Polygons

- *Rhombi*
- *Kites*
- *Trapezoids*

Teacher Preparation and Notes

- *To complete this activity, students will need to know how to change between pages, grab and move points.*
- *The multiple choice items are self-check and students can check them by selecting* ***Menu > Check Answer > Check Answer****.*
- *Notes for using the TI-Nspire™ Navigator™ System are included throughout the activity. The use of the Navigator System is not necessary for completion of this activity.*
- ***To download the student TI-Nspire document (.tns file) and student worksheet, go to education.ti.com/exchange and enter "12096" in the quick search box.***

Associated Materials

- *RhombiKitesTrapezoids_Student.doc*
- *RhombiKitesTrapezoids.tns*

Suggested Related Activities

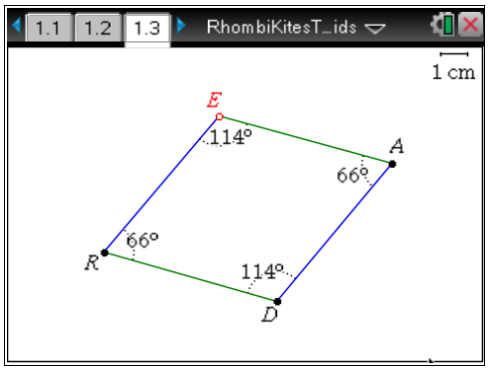
To download any activity listed, go to education.ti.com/exchange and enter the number in the quick search box.

- *Constructing and Investigating Properties of a Rhombus (TI-84 Plus) — 8178*
- *Properties of Trapezoids and Kites (TI-Nspire technology) — 9085*
- *The Flag Problem (TI-Nspire technology) — 9969*

Problem 1 – Properties of Rhombi

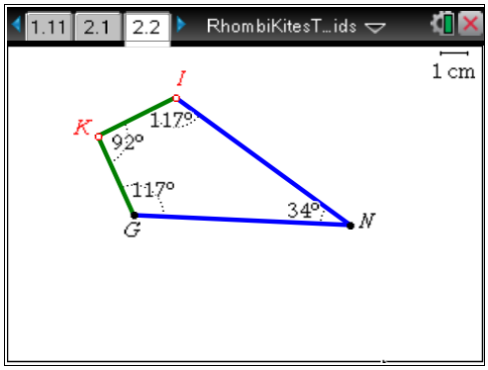
Students will begin this activity by looking at angle properties of rhombi. Students are asked several questions about the angles and diagonals of a rhombus.

An extension of this exercise would be to prove each of these using parallel lines and transversals. Students will need to know the properties of alternate interior angles, same-side interior angles, and corresponding angles.



Problem 2 – Properties of Kites

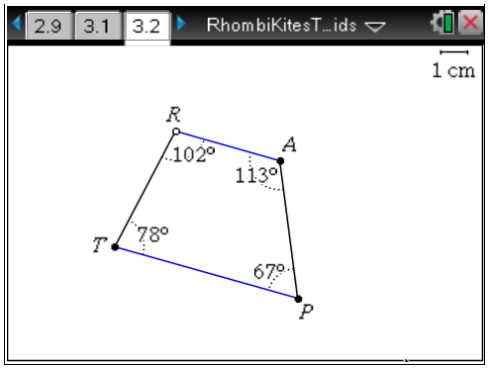
In Problem 2, students will be asked to begin looking at angle properties of kites. Students are asked several questions about the angles and diagonals of kites.



Problem 3 – Properties of Trapezoids

In this problem, we will explore angle properties of trapezoids. Students are given trapezoid *TRAP* and the measure of angles *T*, *R*, *A*, and *P*. Students will move point *R* to four different positions and collect the measures of *T*, *R*, *A*, and *P* onto their accompanying worksheet.

An extension of this exercise would be to prove leg angles are supplementary using parallel lines and transversals. Students will need to know the properties of alternate interior angles, same-side interior angles, and corresponding angles.



TI-Nspire Navigator Opportunity: *Quick Poll*

See Note 1 at the end of this lesson.

Student Solutions

1. Sample answers:

Position	*R*	*E*	*A*	*D*
1	66	114	66	114
2	51	129	51	129
3	96	84	96	84
4	66	114	66	114

2. supplementary

3. congruent

4. right angles

5. bisect

6. Sample answers:

Position	*K*	*I*	*T*	*E*
1	73	127	33	127
2	110	104	42	104
3	102	108	42	108
4	93	117	33	117

7. One pair of opposite angles is congruent and one pair of opposite angles is not congruent.

8. right angles

9. One pair of opposite angles is bisected and one set of opposite angle is not. The pair that is not congruent is the one getting bisected.

10. Sample answers:

Position	*T*	*R*	*A*	*P*
1	72	108	119	61
2	87	93	113	67
3	41	139	80	100
4	108	72	133	47

11. Leg angles are supplementary.

TI-Nspire Navigator Opportunities

Note 1: *Quick Poll*

You may want to use *Quick Poll* to aid the discussion and extend student understanding. Ask students to make connections to rectangles. How are the diagonals of a rectangle related to the diagonals of the other shapes studied in this activity?