Rhombi, Kites, and Trapezoids

ID: 12093

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

- *This activity was written to be explored with the Cabri Jr. app on the TI-84.*
- *Before beginning this activity, make sure that all students have the Cabri Jr. application, and the Cabri Jr. files READ1, READ2, READ3, KING1, KING2, KING3, and TRAP loaded on their TI-84 calculators.*
- ***To download the Cabri Jr. files (.8xv files) and student worksheet, go to education.ti.com/exchange and enter "12093" in the quick search box.***

Associated Materials

- *GeoWeek13_RKT_worksheet_TI84.doc*
- *READ1.8xv*
- *READ2.8xv*
- *READ3.8xv*
- *KING1.8xv*
- *KING2.8xv*
- *KING3.8xv*
- *TRAP.8xv*

Suggested Related Activities

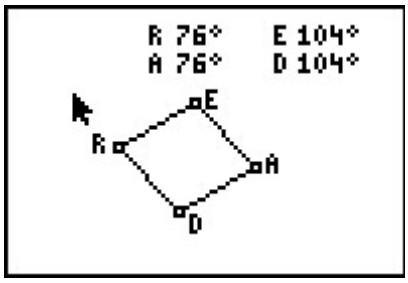
To download any activity listed, go to education.ti.com/exchange and enter the number in the quick search box.

- *Discovering 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

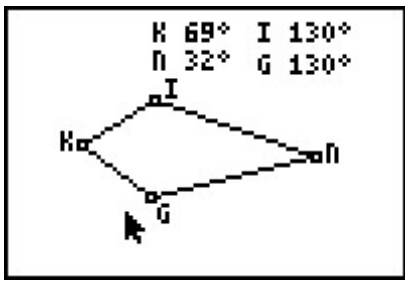
Students will begin this activity by looking at angle properties of rhombi. They are asked several questions about the angles and diagonals of a rhombus.

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

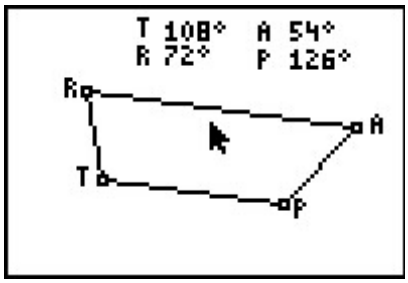
In Problem 2, students will be asked to begin looking at angle properties of kites. They are asked several questions about the angles and diagonals of kites.



Problem 3 – Properties of Trapezoids

In this problem, they 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 angles *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.



Student Solutions

1. Sample answers:

Position	∠R	∠E	∠A	∠D
1	76	104	76	104
2	51	129	51	128
3	95	85	95	85
4	64	116	64	116

2. supplementary

3. congruent

4. right angles

5. bisect

6. Sample answers:

Position	∠K	∠I	∠N	∠G
1	69	130	32	130
2	71	116	58	116
3	61	123	53	123
4	37	142	38	142

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	108	72	54	126
2	126	54	45	135
3	39	141	24	156
4	57	123	37	143

11. Leg angles are supplementary.