TI-*nspire*™

Properties of Parallelograms
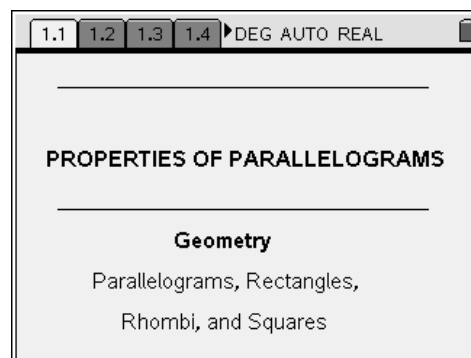
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Name _____

Class _____

In this activity, you will explore:

- *properties of parallelograms, rectangles, rhombi, and squares*

- *relationships among the different parallelograms*

Open the file *GeoAct16_PropParallelograms_EN.tns* on your handheld and follow along with your teacher to work through the activity. Use this document as a reference and to record your answers.

| 1.1 | 1.2 | 1.3 | 1.4 ▶ DEG AUTO REAL |

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PROPERTIES OF PARALLELOGRAMS

_____

Geometry

Parallelograms, Rectangles, Rhombi, and Squares

Problem 1 – Investigating parallelograms

Use the measurement menu to make conjectures about parallelograms.

Move to page 1.3. Find the measurements needed to answer the following.

- The opposite sides of a parallelogram are both parallel and _____.

Follow your teacher's directions to calculate the expression $A + B$, the sum of two consecutive angles of the parallelogram.

- The opposite angles of a parallelogram are _____.
  The consecutive angles are _____.

Construct the diagonals of the parallelogram.

- Are the diagonals of a parallelogram always congruent?

- Do the diagonals of a parallelogram always bisect each other?

Move to page 1.5. Find the measurements needed to answer the following.

- Are the diagonals of a rectangle always congruent?

- Are the diagonals of a rectangle always perpendicular?

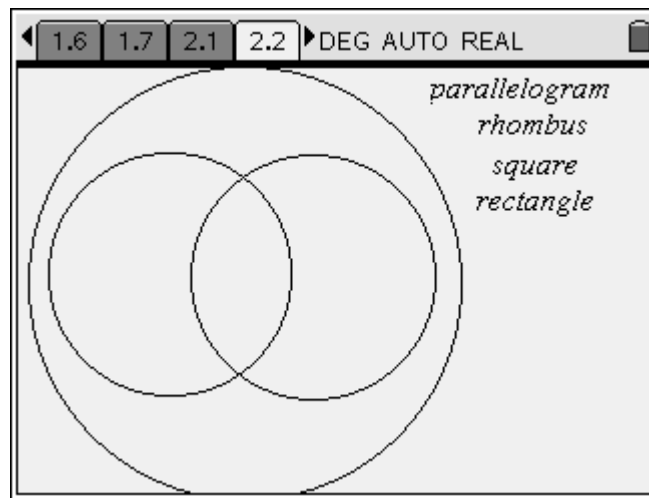Move to page 1.6. Find the measurements needed to answer the following.

- Are the diagonals of a rhombus always congruent?

- Are the diagonals of a rhombus always perpendicular?

- Are the diagonals of a rhombus always angle bisectors of the angles of the rhombus?

Move to page 1.7 and show that a square holds all the characteristics of a parallelogram, rectangle, and rhombus.

Describe the triangles formed by constructing the diagonals of a square.

Problem 2 – Assessment

Move to page 2.2. Move the four words into their appropriate positions in the Venn diagram.

On pages 2.3 though 2.7, fill in the blanks by writing *always*, *sometimes*, or *never*.

- A rectangle is _____ a square.

- The diagonals of a parallelogram are _____ congruent.

- The diagonals of a rhombus are _____ perpendicular.

- The consecutive angles of a parallelogram are _____ complementary.

- A square is _____ a rhombus.