Name _____ Date _____

Day 5 – Properties of Parallelograms and Rectangles

Today, we will discuss two particular types of quadrilaterals: Parallelograms and Rectangles. A **quadrilateral** is a polygon with four edges (or sides) and four vertices or corners. The angles of a quadrilateral add up to be _____ . To name a quadrilateral, we list the vertices in order. A **parallelogram** is a type of quadrilateral that has **two pairs of opposite sides that are parallel.** Parallelograms are denoted by the symbol $\square$. If a quadrilateral has two pairs of parallel, opposite sides, then it can be classified as a parallelogram.

There are 5 theorems associated with PARALLELOGRAMS:

If a quadrilateral is a parallelogram,

then its **opposite sides are congruent**.

If a quadrilateral is a parallelogram,

then its **opposite angles are congruent**.

If a quadrilateral is a parallelogram,

then its **consecutive angles are supplementary.**

If a quadrilateral is a parallelogram, then its **diagonals bisect each other.** This bisects the each diagonal into two congruent _____ .

If a quadrilateral is a parallelogram,

then its **diagonals form two congruent triangles.**

Rectangles

A **rectangle** is a parallelogram with four right angles. Rectangles have all the properties of parallelograms in addition to TWO special properties:

- Diagonals are congruent
- Rectangles have four right angles

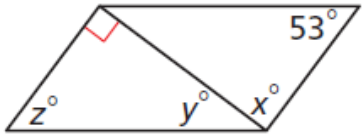
Practice:

1. Solve for x, y, and z.

Relationship: _____

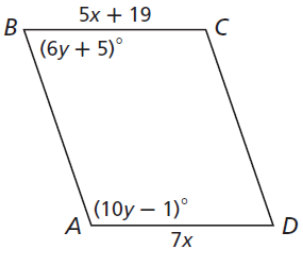
2. Solve for x, y, and z.

Relationship: _____



3. Find the value of x. Then find the length of BC.

Relationship: _____



4. In rectangle *TUVW* below, it is know that $TV = 19 - 2x$ and $WU = 10 + x$. Find the value of x.

Relationship: _____