

6.4 Rectangles

G.QP.1 Prove and apply theorems about parallelograms.
G.QP.2 Prove that given quadrilaterals are parallelograms, rhombuses, rectangles, squares, or trapezoids.
 Include coordinate proofs in the coordinate plane.

Rectangle → _____

Diagram:



Example:

Properties of RECTANGLES	Examples	Diagram
1. All four angles are right angles.		
2. Opposite sides are \cong and parallel.		
3. Opposite angles are \cong .		
4. Consecutive angles are supplementary.		
5. Diagonals are \cong and bisect each other.		

Theorem 6.13

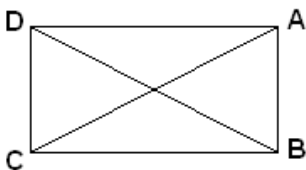
If a _____ is a rectangle, then the _____ are congruent.

Abbreviation: If is a rectangle, diag. are \cong .



Ex 1:

Quadrilateral ABCD is a rectangle.
 If $AC = 4x - 13$ and $BD = 2x + 14$, find x .

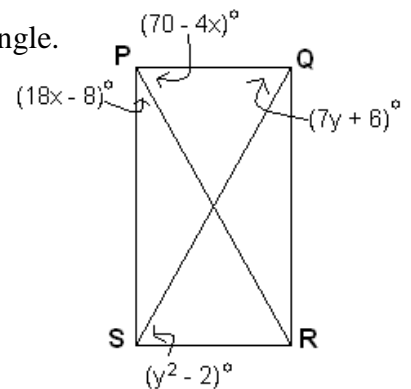


Ex 2:

Quadrilateral PQRS is a rectangle.



a. Find x .

b. Find y .



Theorem 6.14

If the diagonals of a parallelogram are _____, then the parallelogram is a rectangle.

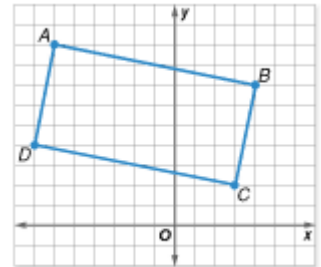
Abbreviation: If diag.  are \cong ,  is a rectangle.

Ex 3:

The Owens family is building a deck in their back yard. Mrs. Owens has laid out stakes where the corners of the deck will be. She has made sure that the opposite sides are congruent. If she measures the diagonals and they are congruent, how can Mrs. Owens be sure that the deck will be a rectangle? Explain.

Ex 4:

Quadrilateral ABCD has vertices $A(-6, 9)$, $B(4, 7)$, $C(3, 2)$, and $D(-7, 4)$. Determine whether ABCD is a rectangle.

**Ex 5:**

A rectangular park has two walking paths as shown. If $TS = 60$ meters, find PR .

