**6.4 Rhombuses Rectangles and Squares**

**VOCABULARY:**

 **Rhombus:** A rhombus is a parallelogram with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 **Rectangle:** A rectangle is a parallelogram with\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 **Square:** A square is a parallelogram with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Example 1:

In the diagram, ABCD is a rectangle.



a. Find AD and AB b. Find m∠A, m∠B, m∠C, and m∠D

Example 2:

In the diagram, PQRS is a rhombus. Find QR, RS, and SP.



**Rhombus Corollary**

**Words:** If a quadrilateral has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, 

then it is a rhombus.

**Symbols:** If $\overbar{AB}≅\overbar{BC}≅\overbar{CD}≅\overbar{AD}$, then ABCD is a rhombus

**Rectangle Corollary**

**Words:** If a quadrilateral has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

then it is a rectangle.

**Symbols:** If$ m∠A≅m∠B≅m∠C≅m∠D≅90°$, then ABCD is a rectangle.

**Square Corollary**

**Words:** If a quadrilateral has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, ****

then it is a square.

**Symbols::** If $\overbar{AB}≅\overbar{BC}≅\overbar{CD}≅\overbar{AD}$ and $m∠A≅m∠B≅m∠C≅m∠D≅90°$, then ABCD is a square.

Example 2: Use the information is the diagram to name the special quadrilateral.

a. b. c.

 

**THEOREM 6.10**

**Words:** The diagonals of a rhombus are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Symbols:** In rhombus ABCD, $\overbar{AC}⊥\overbar{BD}$.

**THEOREM 6.11**

**Words:** The diagonals of a rectangle are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

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**Symbols:** In rhombus ABCD, $\overbar{AC}≅\overbar{BD}$.

Example 3:

ABCD is a rhombus. Find the value of $x$.



Example 4:

A) You nail four pieces of wood together to build a four-sided frame, as shown. What is the shape of the frame?



B) The diagonals measure 7 ft. 4 in. and 7 ft. 2 in. Is the frame a rectangle?

Example 5: Determine if each of the following statements is true, based on the diagram. Explain your answers.



A) ABCD is a rhombus.

B) ABCD is a parallelogram.

C) ABCD is a rectangle.

D) The diagonals are congruent.