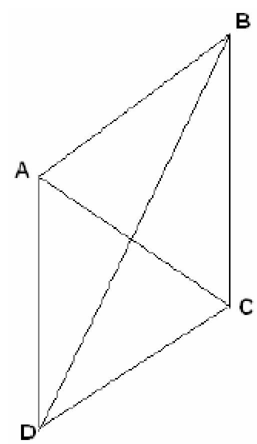
GEOMETRY Date _______________

6.5 Rhombi and Squares

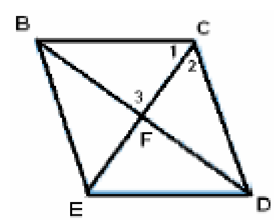
G.QP.2 Prove that given quadrilaterals are parallelograms, rhombuses, rectangles, squares, or trapezoids. Include coordinate proofs in the coordinate plane.
G.LP.4 Develop geometric proofs, including direct proofs, indirect proofs, proofs by contradiction and proofs involving coordinate geometry, using two-column, paragraphs, and flow charts formats.

Rhombus → a ____________________________ with all four sides __________________________

Diagram: Example:

Theorem	Examples	Diagram
If a **parallelogram** is a **rhombus**, then the **diagonals** are ______________________________.		
If the **diagonals** of a parallelogram are **perpendicular**, then the parallelogram is a ______________________________.		
If a parallelogram is a ________________, then the **diagonals bisect** each pair of **opposite angles.**		
If **one diagonal** of a parallelogram **bisects** a pair of **opposite angles**, then the parallelogram is a ____________________.		

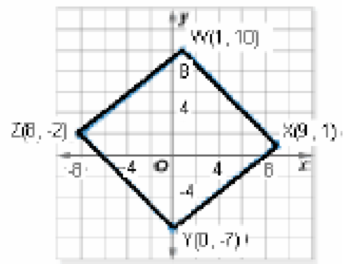
Ex 1:
Use rhombus *BCDE* and the given information to find the value of each variable.
a. If $m\angle 3 = 2y + 26$, find y. **b.** Find $m\angle CED$ if $m\angle BCD = 38°$.



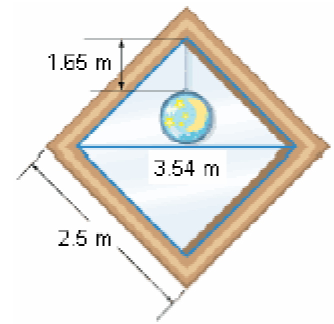
Square → a ______________________________ that is both a ________________ and a ________________

Diagram: Example:

Ex 2:
Determine whether parallelogram $WXYZ$ with vertices $W(1,10), X\ (9,1), Y(0,-7)\ and\ Z\ (-8,2)$ is a rhombus, a rectangle, or a square. List all that apply. Justify your answer.



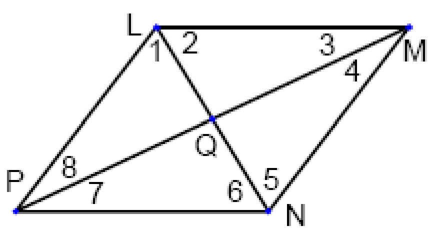
Ex 3:
A square picture window with a sun catcher is shown.
Is the top of the sun catcher in the center of the window?
Justify your answer.



Ex 4: ***PROOF***

Given: *LMNP* is a parallelogram, $\angle 1 \cong \angle 2, \angle 5 \cong \angle 6$

Prove: *LMNP* is a rhombus



Statements	Reasons

PROPERTIES	
Rhombi	**Squares**
A rhombus has ***all*** *of the properties of a parallelogram.* All sides are ____________________. Diagonals are ____________________. Diagonals ____________ the angles of the rhombus.	*A square has* ***all*** *the properties of a:* • ____________________ • ____________________ • ____________________

CONCEPT SUMMARY