# Lesson 7.5 Rhombi and Squares

Tuesday, February 28, 2023 8:36 PM

Click Link Below for Interactive Pear Deck Powerpoint

https://app.peardeck.com/student/tatgyyuns

Lesson 7.5 Rhombi

## Lesson 7.5
## Rhombi and Squares

**Content Objective**
Students apply and prove the properties of rhombi and squares.



## Florida's B.E.S.T. Standards for Mathematics

**MA.912.GR.1.4**
Prove relationships and theorems about parallelograms. Solve mathematical and real-world problems involving postulates, relationships and theorems of parallelograms.

**MA.912.GR. 3.2**
Given a mathematical context, use coordinate geometry to classify or justify definitions, properties and theorems involving circles, triangles o quadrilaterals.

**MA.912.GR.3.3**

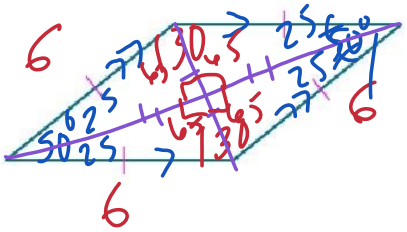
Use coordinate geometry to solve mathematical and real-world geometric problems involving lines, circles, triangles and quadrilaterals.



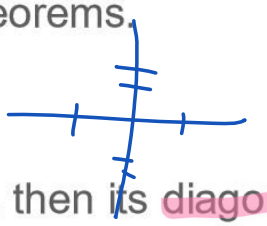


## Learn
Properties of Rhombi and Squares

A **rhombus** is a parallelogram with all four sides congruent. All of the properties of a parallelogram hold true for a rhombus, in addition to the following two theorems.



### Diagonals of a Rhombus



If a parallelogram is a rhombus, then its diagonals are perpendicular.

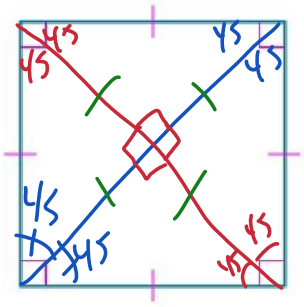
If a parallelogram is a rhombus, then each diagonal bisects a pair of opposite angles.

Students, draw anywhere on this slide!



## Learn
Properties of Rhombi and Squares

A **square** is a parallelogram with all four sides and all four angles congruent. All of the properties of parallelograms, rectangles, and rhombi apply to squares. For example, the diagonals of a square bisect each other (parallelogram), are congruent (rectangle), and are perpendicular (rhombus).



Students, draw anywhere on this slide!



## Example 1
Use the Definition of a Rhombus

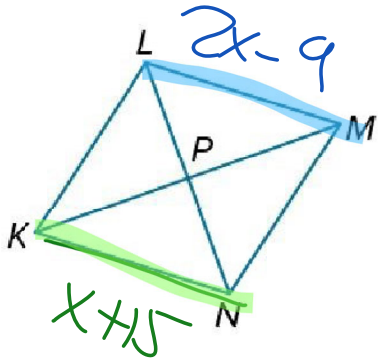
**If $LM = 2x - 9$ and $KN = x + 15$ in rhombus $KLMN$, find the value of $x$.**

$2x - 9 = x + 15$

$+9 \quad +9$

$\frac{2x}{2} = \frac{14}{2}$

$x = 24$




Students, draw anywhere on this slide!

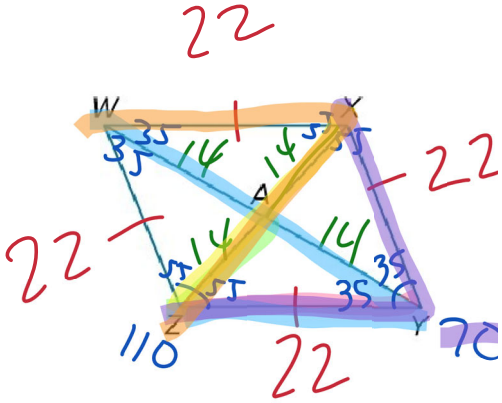
Pear Deck Interactive Slide
Do not remove this bar

## Example 1
Use the Definition of a Rhombus

**Check**

Quadrilateral $WXYZ$ is a rhombus. If $AZ = 14$, $ZY = 22$, and $m\angle WYZ = 35°$, find $XZ$, $m\angle XYZ$, and $m\angle WXZ$.

28 70 55



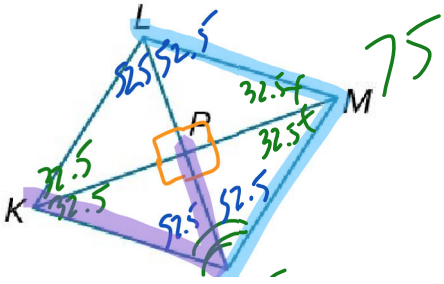

Students, draw anywhere on this slide!

Pear Deck Interactive Slide
Do not remove this bar

## Example 2
Use the Diagonals of a Rhombus

**The diagonals of rhombus $KLMN$ intersect at $P$. If $m\angle LMN = 75°$, find $m\angle KNP$.**

52.5



N 105

Students, draw anywhere on this slide!

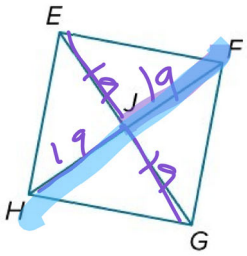
Pear Deck Interactive Slide
Do not remove this bar

## Example 3

Use the Definition of a Square

***EFGH* is a square. If *FJ* = 19, find *FH*.**

38




Students, draw anywhere on this slide!

Pear Deck Interactive Slide
Do not remove this bar

## Example 3

Use the Definition of a Square

$4x + 3 = 41$

$-3 \quad -3$

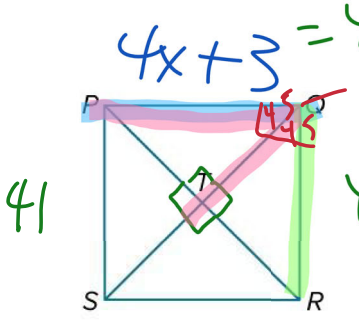
$4x = 38$

$x = 9.5$

**Check**

In rhombus *PQRS*, *PQ* = 4*x* + 3, *QR* = 41, and $m\angle PQT = (2x + 4y)°$. What must the value of *y* be for rhombus *PQRS* to be a square?

A. 6.5 B. 9.5 C. 45 D. 90




41

41

$2x + 4y = 45$

$2(9.5) + 4y = 45$

$19 + 4y = 45$

$-19 \quad -19$

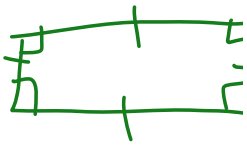
$\frac{4y}{4} = \frac{26}{4}$

$y = 6.5$

# Exit Ticket

**Which statements are *true*, and which are *false*?**

1. All parallelograms are quadrilaterals. True
2. No rhombus is a parallelogram. False
3. All squares are rhombi. True
4. Some rectangles are squares. True
5. Some rhombi are rectangles. False



Students, draw anywhere on this slide!
Pear Deck Interactive Slide
Do not remove this bar