Special Parallelograms

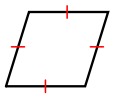
title

Properties of Parallelograms

- Opposite sides are parallel.
- Opposite sides are congruent.
- Opposite angles are congruent.
- Consecutive angles are supplementary.
- Diagonals bisect each other.

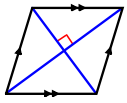
parallelograms

Rhombus—parallelogram with four congruent sides

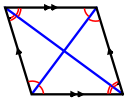


Properties

Diagonals are perpendicular.

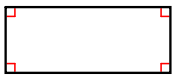


Each diagonal bisects a pair of opposite angles.



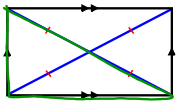
rhombuses

Rectangle—parallelogram with four right angles



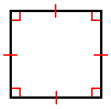
Properties

Diagonals are congruent.



rectangles

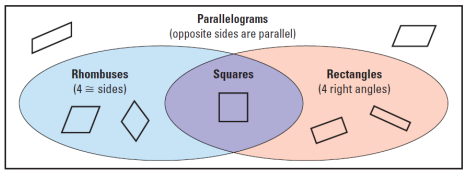
Square—parallelogram with four congruent sides and four right angles



Properties

A square is both a rhombus and a rectangle.

Thus, it has all of the properties of a rhombus and the properties of a rectangle.



venn diagram

The diagonals of rhombus *ABCD* intersect at *E*. Use the given information to find the indicated measures.

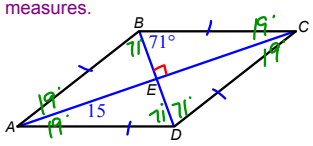
$m\angle AEB =$ 90°

$m\angle ABE =$ 71°

$m\angle BAE =$ 19°

$m\angle BAD =$ 38°

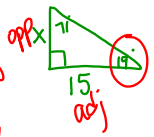
$AC =$ 30



$BE =$

$15\tan 19° = \frac{x}{15} \cdot 15$

$BE = 5.16$



examples

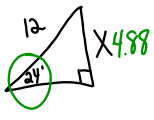
The diagonals of rectangle *JKLM* intersect at *N*. Use the given information to find the indicated measures.

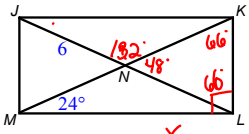
$m\angle LKM =$ 66°

$m\angle JNK =$ 132°

$JL =$ 12

$KL =$ $\sin 24° = \frac{x}{12}$, 4.88

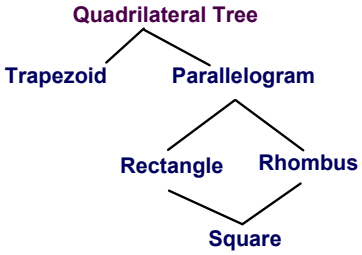




$JK =$ 10.96

$\sin 66° = \frac{x}{12}$

examples



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Conclusion

1. What are the properties of a Rectangle?
   Diagonals ≅ and 4 Rt ∠s
2. What are the properties of a Rhombus?
   4 ≅ sides, Diagonals ⊥ & bisects opp ∠s
3. What are the properties of a Square?
   4 ≅ sides, 4 rt ∠s,
   Rhombus & Rectangle

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Assignment

Special Parallelograms Wkst

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