

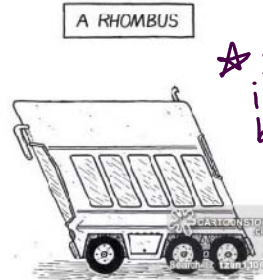
Geometry CC – Mr. Valentinc
 Unit 9 Lesson 8: Proving Rhombuses

Name: _____
 Date: _____ Per: _____

Aim: How can we prove a quadrilateral is a rhombus?

Do Now: What make a rhombus different from all parallelograms?

- ① 4 \cong sides
- ② Diagonals are \perp
- ③ Diagonals bisect \sphericalangle 's

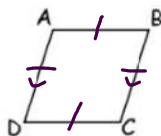


★ Still prove its a \square but with one of these features

1. Given: $\overline{AD} \cong \overline{BC}$, $AD \parallel BC$

$\overline{AD} \cong \overline{AB}$

Prove: ABCD is a rhombus

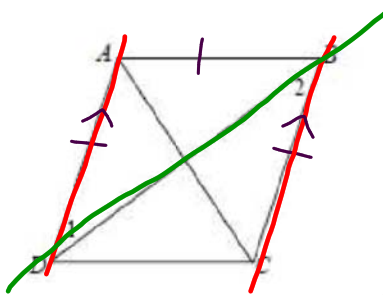


statement	reason
① $\overline{AD} \cong \overline{BC}$ $AD \parallel BC$ $\overline{AD} \cong \overline{AB}$	① Given
② ABCD is a \square	② One pair of opp. sides is both \cong and \parallel , it is a \square .
③ ABCD is a rhombus	③ If a \square has \cong adjacent sides, it is a rhombus.

2. Given: $\overline{AD} \cong \overline{BC}$, $\sphericalangle 1 \cong \sphericalangle 2$

$\overline{AB} \cong \overline{BC}$

Prove: ABCD is a rhombus.



Statement	reason
① $\overline{AD} \cong \overline{BC}$ $\sphericalangle 1 \cong \sphericalangle 2$ $\overline{AB} \cong \overline{BC}$	① Given
② $AD \parallel BC$	② When 2 lines are cut by a transversal and alt. int. \sphericalangle 's are \cong , the lines are \parallel .
③ ABCD is a \square	③ If one pair of opp. sides is both \cong and \parallel , its a \square .
④ ABCD is a rhombus	④ If a \square has \cong adjacent sides, it is a rhombus.

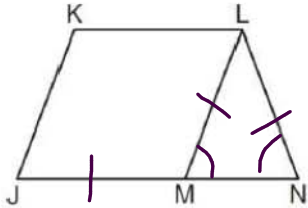
★ HW: # 3, 4, 5

3) Given: $JKLM$ is a parallelogram.

$$\overline{JM} \cong \overline{LN}$$

$$\angle LMN \cong \angle LNM$$

Prove: $JKLM$ is a rhombus.



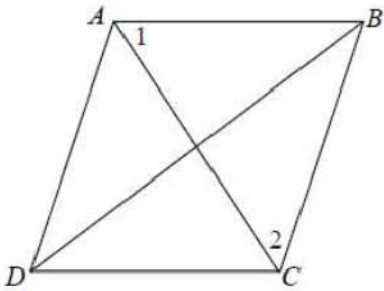
Statement	Reason
① $JKLM$ is a \square $\overline{JM} \cong \overline{LN}$ $\angle LMN \cong \angle LNM$	① Given
② $LM \cong LN$	② If two \angle 's of a Δ are \cong , the sides opposite them are \cong .
③ $LM \cong JM$	③ Substitution Property
④ $JKLM$ is a rhombus	④ If a \square has \cong adjacent sides, it is a rhombus.

4. Given: $\overline{AB} \parallel \overline{DC}$,

$$\overline{AD} \parallel \overline{BC},$$

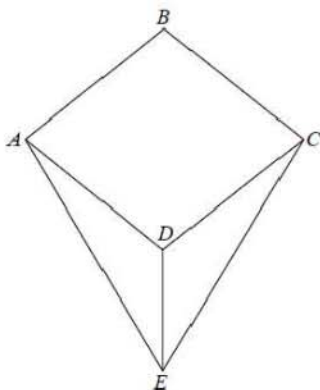
$$\angle 1 \cong \angle 2$$

Prove: $ABCD$ is a rhombus.



5. Given: Rhombus $ABCD$,
 $\overline{AE} \cong \overline{CE}$

Prove: $\triangle ADE \cong \triangle CDE$



6. Given: $AECB$ is a rhombus,
 \overline{AED} , \overline{FEC}
 $\angle FAB \cong \angle DCB$
 Prove: $\overline{FE} \cong \overline{DE}$

