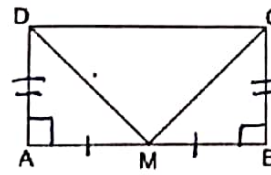


March 22

GUIDED NOTES: Proofs with Parallelograms

* Think of all the properties we have talked about when doing this!

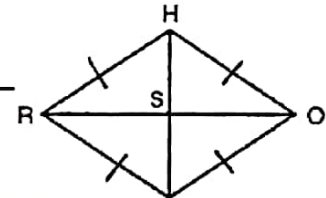
EX1. Given $\square ABCD$ is a Rectangle.
 M is the Midpoint of AB
 Prove $DM \cong CM$



Statement	Reason
1. ABCD is rectangle	1. Given
2. M is midpoint of AB	2. Given
3. $\angle A$ and $\angle B$ are Right Angles	3. Definition of rectangle (rectangles have right angles)
4. $AM \cong MB$	4. Definition of midpoint (M is in middle between A and B)
5. $AD \cong BC$	5. Opposite sides of rectangle are congruent
6. $\triangle DAM \cong \triangle CBM$	6. SAS
7. $DM \cong CM$	7. CPCTC

↑
Corresponding Parts of Congruent Triangles are Congruent

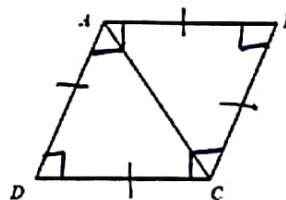
EX2. Given $\square BRHO$ is a Parallelogram.
 $BR \cong BO$
 Prove $\angle HSR \cong \angle HSO$



Statement	Reason
1. BRHO is parallelogram	1. Given
2. $BR \cong BO$	2. Given
3. $OB \cong HR$	3. Opposite sides of parallelogram are congruent
4. $RB \cong HO$	4. Opposite sides of parallelogram are congruent
5. BRHO is rhombus	5. All sides are congruent.
6. $\angle HSR \cong \angle HSO$	6. Diagonals of rhombus are perpendicular (make right angles)

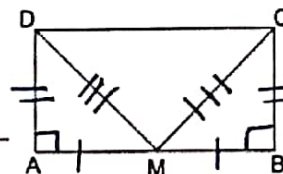
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EX3. Given $\square ABCD$ is a Parallelogram.
 $\angle ADC$ is a Right Angle
 $AD \cong DC$
 Prove $\square ABCD$ is a Square



Statement	Reason
1. $ABCD$ is parallelogram	1. Given
2. $\angle ADC$ is right angle	2. Given
3. $AD \cong DC$	3. Given
4. $\angle ABC \cong \angle ADC \cong \angle DAB \cong \angle BCD$	4. If one angle of a parallelogram is a right angle, then all the angles are right angles.
5. $AD \cong BC$	5. Opposite sides of parallelogram are congruent
6. $AB \cong DC$	6. Opposite sides of parallelogram are congruent
7. $\square ABCD$ is a Square	7. Definition of square (4 right angles and 4 congruent sides)

EX4. Given $\square ABCD$ is a Rectangle
 $AM \cong MB$
 \rightarrow Prove $\triangle DMC$ is an Isosceles Triangle



Statement	Reason
1. $ABCD$ is rectangle	1. Given
2. $AM \cong MB$	2. Given
3. $AD \cong CB$	3. Opposite sides of rectangle are congruent
4. $\angle A$ and $\angle B$ are right angles	4. Rectangles have 4 right angles
5. $\triangle DAM \cong \triangle CBM$	5. SAS
6. $DM \cong MC$	6. CPCTC \leftarrow always comes after saying triangles are congruent
7. $\triangle DMC$ is Isosceles Triangle	7. An isosceles triangle has 2 congruent sides.

\uparrow
 what you are trying to prove
 is always the last statement
 in your proof