

Geometry CC – Mr. Valentino
 Unit 9 Lesson 7: Proving Rectangles

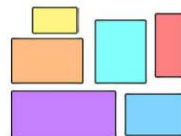
Name: _____
 Date: _____ Per: _____

Aim: How can we prove quadrilaterals are rectangles?

How to prove that a quadrilateral is a rectangle:

1) First show that the quadrilateral is a parallelogram.

2) Next show that it has any one of the other properties of a rectangle.

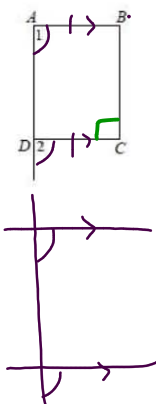


- Diagonals are \cong
- One right angle.

1)
 Given: Parallelogram ABCD
 $\angle B$ is a right \angle
 Prove: ABCD is a rectangle

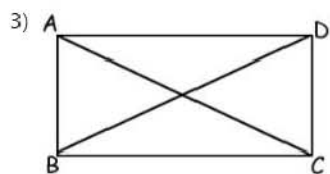
| Statement | Reason |
|----------------------------------|---|
| ① \square ABCD | ① Given |
| ② $AB \perp BC$ | ② Given |
| ③ $\angle B$ is a right \angle | ③ \perp lines form right \angle 's |
| ④ ABCD is a \square | ④ If a \square contains one right \angle , it must be a \square . |

2) Given: $\overline{AB} \cong \overline{DC}$,
 $\angle 1 \cong \angle 2$,
 $\overline{BC} \perp \overline{DC}$
 Prove: ABCD is a rectangle.



| Statement | Reason |
|---|---|
| ① $\overline{AB} \cong \overline{DC}$ $\angle 1 \cong \angle 2$ $\overline{BC} \perp \overline{DC}$ | ① Given |
| ② $AB \parallel DC$ | ② When two lines cut by a transversal form corresponding \angle 's, the lines must be \parallel . |
| ③ ABCD is a \square | ③ One pair of opposite sides is both \cong and \parallel . |
| ④ $\angle C$ is a right \angle | ④ \perp lines form right \angle 's |
| ⑤ ABCD is a \square | ⑤ If a \square contains a right \angle it is a \square . |

HW # 3, # 1
 (practice problems)



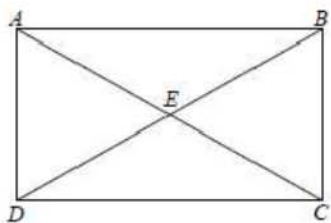
Given: Parallelogram ABCD

$$\triangle ABC \cong \triangle DCB$$

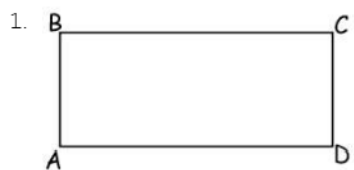
Prove: ABCD is a rectangle

- 4) Given: Right triangle ABC with
 right angle ABC ,
 \overline{BE} is a median,
 $\overline{BE} \cong \overline{ED}$

Prove: $ABCD$ is a rectangle.



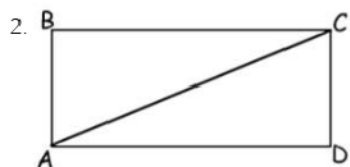
Practice Problems



Given: $AB \cong CD$, $BC \cong AD$

$\angle A$ is a right angle

Prove: ABCD is a rectangle



Given: $\triangle ABC \cong \triangle CDA$

$AB \perp BC$

Prove: ABCD is a rectangle