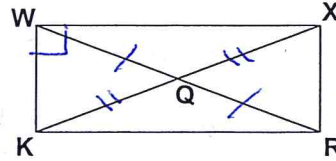


## Proving All Parallelograms

1. Given:  $\overline{KX}$  bisects  $\overline{WR}$ ,  $\overline{KQ} \cong \overline{QX}$ ,  $\overline{KW} \perp \overline{WX}$

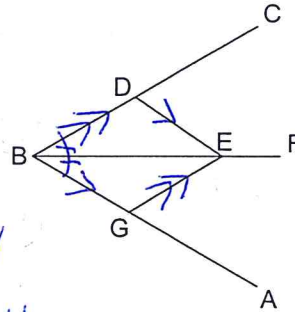
Prove:  $WXRK$  is a rectangle



Statements	Reasons
① $\overline{KX}$ bisects $\overline{WR}$	① given
② $\overline{KQ} \cong \overline{QX}$	② <del>given</del> A line bisector creates two $\cong$ segments
③ $\overline{KQ} \cong \overline{QX}$	③ given
④ $WXRK$ is a parallelogram	④ A parallelogram has diagonals that bisect each other
⑤ $\overline{KW} \perp \overline{WX}$	⑤ given
⑥ $\angle KWX$ is a right angle	⑥ perpendicular lines form right angles
⑦ $WXRK$ is a rectangle	⑦ A rectangle is a parallelogram with a right angle

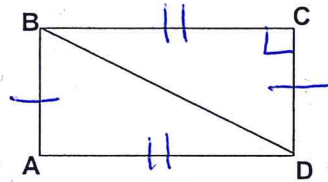
2. Given:  $\overline{BF}$  bisects  $\angle CBA$ ,  $\overline{DE} \parallel \overline{BA}$ ,  $\overline{GE} \parallel \overline{BC}$

Prove:  $DEGB$  is a rhombus



Statements	Reasons
① $\overline{DE} \parallel \overline{BA}$ , $\overline{GE} \parallel \overline{BC}$	① given
② $DEGB$ is a parallelogram	② A parallelogram has 2 pairs of opposite sides parallel
③ $\overline{BF}$ bisects $\angle CBA$	③ given
④ $DEGB$ is a rhombus	④ A rhombus is a parallelogram with diagonals that bisect the angles.

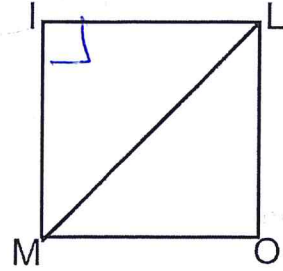
3. Given:  $\triangle ABD \cong \triangle CDB$ ,  $\overline{BC} \perp \overline{CD}$   
Prove:  $ABCD$  is a rectangle



Statements	Reasons
① $\triangle ABD \cong \triangle CDB$	① Given
② $\overline{AB} \cong \overline{CD}$ , $\overline{BC} \cong \overline{AD}$	② CPCTC
③ $ABCD$ is a parallelogram	③ A parallelogram has 2 pairs of opposite sides congruent
④ $\overline{BC} \perp \overline{CD}$	④ given
⑤ $\angle BCD$ is a right angle	⑤ perpendicular lines form right angles
⑥ $ABCD$ is a rectangle	⑥ A rectangle is a parallelogram with a right angle.

must prove a rectangle property

4. Given: MILO is a rhombus,  $\overline{MI} \perp \overline{IL}$   
 Prove: MILO is a square



statements

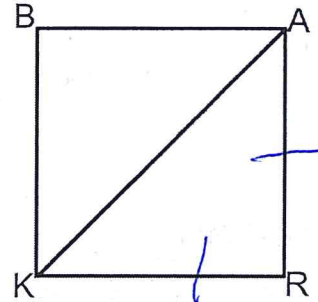
Reasons

- ① MILO is a ~~rhombus~~
- ②  $\overline{MI} \perp \overline{IL}$
- ③  $\angle MIL$  is a right angle
- ④ MILO is a square

- ① given
- ② given
- ③ Perpendicular lines form right angles.
- ④ A square is a rhombus with a right angle.

must prove property of rhombus

5. Given: BARK is a rectangle and  $\triangle ARK$  is isosceles.  
 Prove: BARK is a square



statements

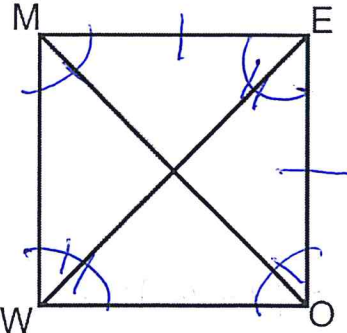
Reasons

- ① BARK is a rectangle
- ②  $\triangle ARK$  is isosceles
- ③  $\overline{AR} \cong \overline{KR}$
- ④ BARK is a square

- ① given
- ② given
- ③ Isosceles Triangle theorem
- ④ A square is a rectangle with consecutive sides congruent

consecutive sides  $\cong$   
 diagonals  $\cong$

6. Given:  $\angle WME \cong \angle EOW$ ,  $\angle MWO \cong \angle MEO$ ,  $\overline{ME} \cong \overline{EO}$ ,  $\overline{MO} \cong \overline{EW}$   
 Prove: MEOW is a square



statements

Reasons

- ①  $\angle WME \cong \angle EOW$   
 $\angle MWO \cong \angle MEO$
- ② MEOW is a parallelogram
- ③  $\overline{ME} \cong \overline{EO}$
- ④  $\overline{MO} \cong \overline{EW}$
- ⑤ MEOW is a square

- ① given
- ② A parallelogram has two pairs of opposite angles  $\cong$
- ③ given
- ④ given
- ⑤ A square is a parallelogram with consecutive sides congruent and diagonals congruent.