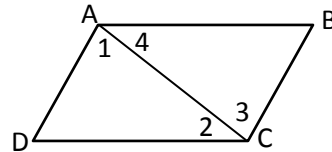


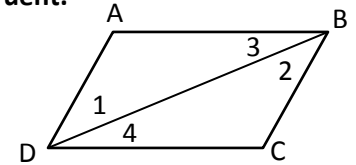
Given: Parallelogram ABCD



Prove: $\triangle ADC \cong \triangle CBA$

Opposite sides of a parallelogram are congruent.

Given: Parallelogram ABCD



Prove: $\overline{AB} \cong \overline{CD}$

Statements	Reasons
1) Paralloologram ABCD	1) Given
2) $\overline{AD} \parallel \overline{BC}$	2) \parallel gram \rightarrow opp sides \parallel
3) $\angle 1 \cong \angle 3$	3) \parallel lines \rightarrow Alt Int \angle 's \cong
4) $\overline{AC} \cong \overline{CA}$	4) Reflexive Prop
5) $\overline{AB} \parallel \overline{CD}$	5) \parallel gram \rightarrow opp sides \parallel
6) $\angle 2 \cong \angle 4$	6) \parallel lines \rightarrow Alt Int \angle 's \cong
7) $\triangle ADC \cong \triangle CBA$	7) ASA

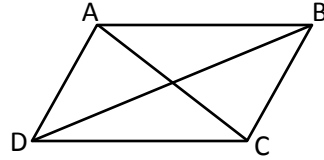
Statements	Reasons
1) Paralloologram ABCD	1) Given
2) $\overline{AB} \parallel \overline{CD}$	2) \parallel gram \rightarrow opp sides \parallel
3) $\angle 3 \cong \angle 4$	3) \parallel lines \rightarrow Alt Int \angle 's \cong
4) $\overline{DB} \cong \overline{BD}$	4) Reflexive Prop
5) $\overline{AD} \parallel \overline{BC}$	5) \parallel gram \rightarrow opp sides \parallel
6) $\angle 1 \cong \angle 2$	6) \parallel lines \rightarrow Alt Int \angle 's \cong
7) $\triangle ADB \cong \triangle CBD$	7) ASA
8) $\overline{AB} \cong \overline{CD}$	8) CPCTC
* We could have also proven $\overline{AD} \cong \overline{BC}$	

After doing both of these proofs, what can we say about triangles created by the diagonals of a parallelogram?

They are congruent! (shortcut)

Opposite angles of a parallelogram are congruent.

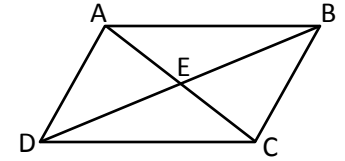
Given: Parallelogram ABCD



Prove: $\angle A \cong \angle C$

Diagonals of a parallelogram bisect each other.

Given: Parallelogram ABCD



Prove: $\overline{AE} \cong \overline{CE}$ and $\overline{DE} \cong \overline{BE}$

Statements	Reasons
1) Paralloologram ABCD	1) Given
2) $\triangle ADB \cong \triangle CBD$	2) gram \rightarrow diagonal forms \cong Δ s
3) $\angle A \cong \angle C$	3) CPCTC
* We could have also proven $\angle D \cong \angle B$ by using $\triangle ADB \cong \triangle CBD$	

Statements	Reasons
1) Paralloologram ABCD	1) Given
2) $\overline{AB} \parallel \overline{CD}$	2) gram \rightarrow opp sides
3) $\angle 1 \cong \angle 2$ and $\angle 3 \cong \angle 4$	3) lines \rightarrow Alt Int \angle 's \cong
4) $\overline{AB} \cong \overline{DC}$	4) gram \rightarrow opp sides \cong
5) $\triangle AEB \cong \triangle CED$	7) ASA
6) $\overline{AE} \cong \overline{CE}$ and $\overline{DE} \cong \overline{BE}$	6) CPCTC
* If those segs are \cong , then the diagonals both bisect each other.	