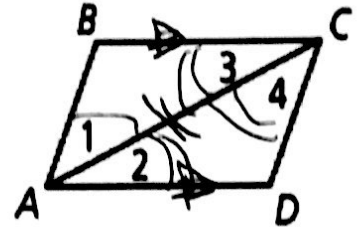


GUIDED NOTES: Proofs with Parallelograms

CPCTC – Corresponding Parts of Congruent Triangles are Congruent

EX1. Given: $\square ABCD$ is a parallelogram.

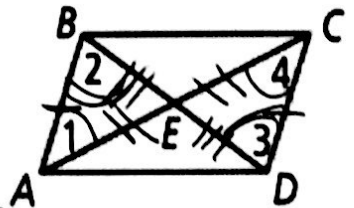
Prove: $AB = CD$ and $BC = DA$.



Statement	Reason
1. $ABCD$ is a parallelogram	1. Given
2. $BC \parallel AD$	2. Definition of a parallelogram
3. $\angle 1 = \angle 4, \angle 3 = \angle 2$	3. Alt Intr. \angle s
4. $AC = AC$	4. Reflexive
5. $\triangle ABC = \triangle CDA$	5. ASA
6. $AB = CD$ & $BC = DA$	6. CPCTC

EX2. Given: $\square ABCD$ is a parallelogram.

Prove: AC and BD bisect each other at E .

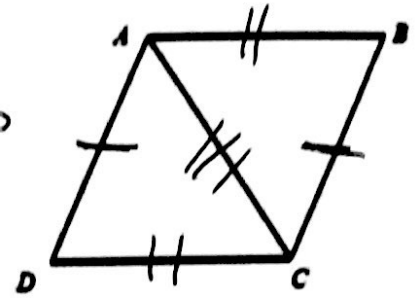


Statement	Reason
1. $ABCD$ is a parallelogram	1. Given
2. $AB \parallel DC$	2. def of parallelogram
3. $\angle 1 = \angle 4, \angle 2 = \angle 3$	3. Alt Intr. \angle s
4. $AB = DC$	4. Prop of parallelogram
5. $\triangle ABE \cong \triangle CDE$	5. ASA
6. $AE = CE, BE = DE$	6. CPCTC
7. BD bisects AC at E .	7. Definition of bisector

Opp sides
 \cong
pnp

EX3. Given: ABCD is a parallelogram.
 Prove: $\triangle DAC \cong \triangle BCA$

Statement	Reason
1. $\square ABCD$ is a parallelogram	1. Given
2. $AD \cong BC$	2. Opp sides \cong prop
3. $AB \cong CD$	3. Opp sides \cong prop
4. $AC \cong AC$	4. Reflexive Property
5. $\triangle DAC \cong \triangle BCA$	5. SSS



EX4. Given: $\angle 1 \cong \angle 2$
 $\angle 3 \cong \angle 4$
 Prove: $\angle A \cong \angle C$

Statement	Reason
1. $\angle 1 \cong \angle 2$	1. Given
2. $\angle 3 \cong \angle 4$	2. Given
3. $BD \cong BD$	3. Reflexive property
4. $\triangle ABD \cong \triangle CDB$	4. ASA
5. $\angle A \cong \angle C$	5. CPCTC.

