

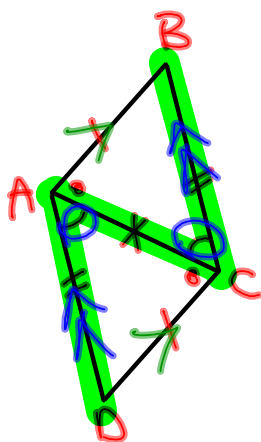
How do we prove that a quadrilateral is a parallelogram?

Do Now List Def. & properties of $\square P$.

Def. A quad. w/ 2 pairs of $\parallel$ sides.

- 1) opp. sides are $\cong$.
- 2) $\angle$'s $\parallel$ $\angle$'s.
- ~~3) A diag. creates 2 $\cong$ Δ 's.~~
- ~~4) diag. bisect each other.~~
- 5) $\therefore$ create 4 Δ 's with equal Areas.

1) opp. sides are $\cong$. ✓



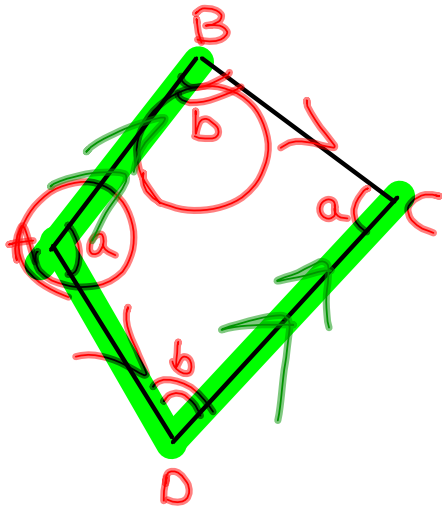
Given: $\overline{AB} \cong \overline{CD}$
 $\overline{AD} \cong \overline{BC}$

Is ABCD a $\square P$?

yes

2) opp. $\angle$'s are $\cong$ ✓

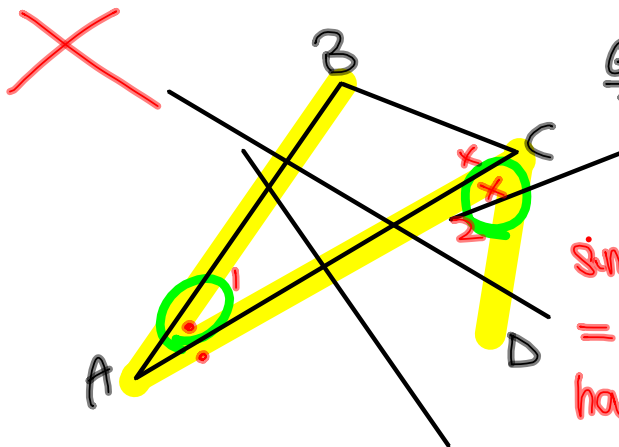
Given $\angle A \cong \angle C$
 $\angle B \cong \angle D$



$$2a + 2b = 360$$

$$a + b = 180$$

3) A diagonal creates 2 $\cong \triangle$'s.

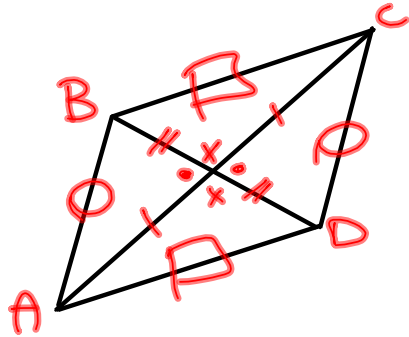


Given $\triangle ABC \cong \triangle ADC$

Since $\angle 1$ is not necessarily
 $= \angle 2$, $\overline{AB}$ does not
 have to be $\parallel \overline{CD}$.

inconclusive

4) diag. b'sect each other.



Given $\overline{AC} \nmid \overline{BD}$ bisect
each other.