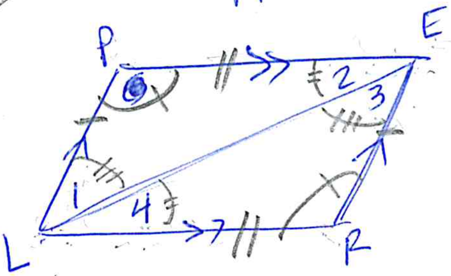
Prove: Opposite angles of a parallelogram are congruent.
Opposite sides of a parallelogram are congruent.



Given: parallelogram PERL with $\overline{PE} \parallel \overline{RL}$ $\overline{PL} \parallel \overline{RE}$ and diagonal LE.

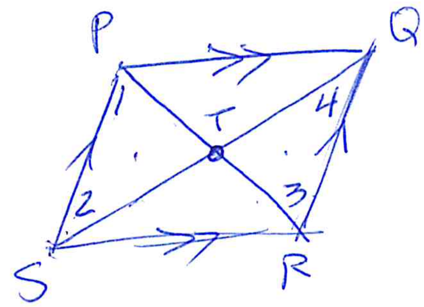
Show: $\angle R \cong \angle P$, $\overline{PE} \cong \overline{RL}$, $\overline{PL} \cong \overline{RE}$

$\angle 1 + \angle 4 = \angle 2 + \angle 3$

	What I know	Why I know
1	$\overline{PE} \parallel \overline{RL}$ $\overline{PL} \parallel \overline{RE}$	? Given
2	? $\overline{LE} \cong \overline{LE}$	Reflexive Property (Shared side)
3	? $\angle 3 \cong \angle 1$	Alternate Interior Angles ~~Postulate~~ Th
4	$\angle 2 \cong \angle 4$	? Alternate Int Angles Th.
5	? $\triangle PEL \cong \triangle RLE$	ASA Post.
6	$\angle P \cong \angle R$	? Corresponding parts are congruent
7	$\overline{PE} \cong \overline{RL}$	
8	$\overline{ER} \cong \overline{LP}$	
9	? $\angle 3 + \angle 2 \cong \angle 1 + \angle 4$	Addition prop. of equality

$\therefore$ Therefore

Prove: The diagonals of a parallelogram bisect each other.



Given: Parallelogram PQRS with $\overline{PQ} \parallel \overline{RS}$ and $\overline{PS} \parallel \overline{RQ}$, and diagonals $\overline{PR}$ & $\overline{QS}$

Show: T is the midpoint of $\overline{PR}$ & $\overline{QS}$

What I Know	Why I Know
$\overline{PQ} \parallel \overline{RS}$, $\overline{PS} \parallel \overline{RQ}$	Given
$\overline{PS} \cong \overline{QR}$	Opp sides of $\parallel$ are $\cong$ Th.
extra → $\angle 1$ & $\angle 3$ are AIA, $\angle 2$ & $\angle 4$ are AIA	Def of AIA
$\angle 1 \cong \angle 3$, $\angle 2 \cong \angle 4$	AIA Post.
$\triangle PTS \cong \triangle RTQ$	ASA Post.
$\overline{PT} \cong \overline{RT}$ $\overline{ST} \cong \overline{QT}$	Corresponding parts are $\cong$
T is the midpoint of $\overline{PR}$ & $\overline{QS}$	Def. of midpoint

$\therefore$ The diagonals bisect each other. (def of bisect)