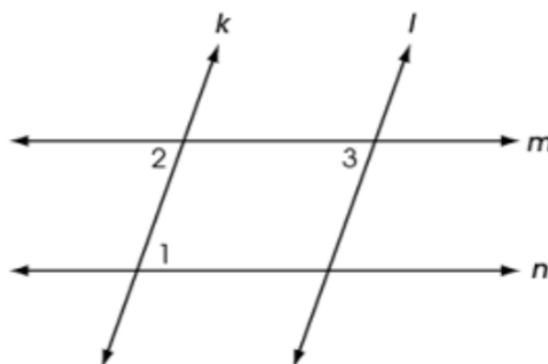


Parallelogram

Proof.

Problem 1 Adapted from Ohio's 2017 Geometry released item 13.

Two pairs of parallel lines intersect to form a parallelogram as shown.



Complete the following proof that opposite angles of a parallelogram are congruent:

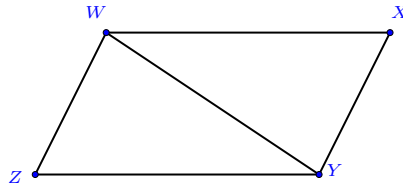
- (a) $\angle 1 \cong \angle 2$ as (opposite angles / alternate interior angles ✓ / corresponding angles) for parallel lines (m and n ✓ / k and l).
- (b) $\angle 3 \cong \angle 2$ as (opposite angles / alternate interior angles / corresponding angles ✓) for parallel lines (m and n / k and l ✓).
- (c) Then $\angle 1 \cong \angle 3$ because they are both congruent to $\angle 2$.

Problem 2 Adapted from Ohio's 2018 Geometry released item 21.

Given the parallelogram $WXYZ$, prove that $\overline{WX} \cong \overline{YZ}$.

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Parallelogram



Complete the proof below:

- (a) $\angle ZWY \cong \angle XYW$ as alternate interior angles for parallel segments \overline{WZ} and \overline{XY}
- (b) $\angle ZYW \cong \angle XWY$ as alternate interior angles for parallel segments \overline{WX} and \overline{YZ} .
- (c) $\overline{WY} \cong \overline{WY}$ because a segment is congruent to itself.
- (d) $\triangle WYZ \cong \triangle YWX$ by the ASA criterion.
- (e) Then $\overline{WX} \cong \overline{YZ}$ as corresponding parts of congruent triangles.

Fixnote: Use drop-down menus. Maybe number the angles.