

3.3: || Lines and Transversals

Objective: - Prove and use results about parallel lines and transversals.
- Use properties of || lines to solve real-life problems

Warm-up: take scrap paper and create two || lines and a transversal. Now measure each angle with a protractor.

Postulate 15 Corresponding Angles Postulate

If two parallel lines are cut by a transversal, then corresponding angles are congruent



Theorem 3.4 Alternate Interior Angles

If two || lines are cut by a transversal, then the pairs of alternate interior angles are \cong



Theorem 3.5 Same-side Interior Angles

If two || lines are cut by a transversal, then same-side interior angles are supplementary

Theorem 3.6 Alternate Exterior Angles

If two || lines are cut by a transversal, then alternate exterior angles are congruent

Theorem 3.7 \perp Transversal

If a transversal is \perp to one of two || lines, then it is \perp to the other



if $j \perp h$, then $j \perp k$

Proof of Alternate Interior Angles Theorem

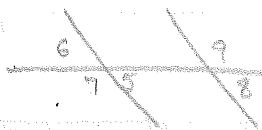


Given: $p \parallel q$

Prove: $\angle 1 \cong \angle 2$

Statement	Reason
1) $p \parallel q$	1) Given
2) $\angle 1 \cong \angle 3$	2) Corresponding Angles Theorem
3) $\angle 3 \cong \angle 2$	3) Vertical Angles Theorem
4) $\angle 1 \cong \angle 2$	4) Transitive Property of Congruence

Now try



$m\angle 5 = 65^\circ$, find the rest of the angle measures

Using 11 Lines, Transversals, and Algebra



Homework 3.3 B