

Lesson 1.2.6: Unknown Angle Proofs (part 3)

Targets:

- I can write unknown angle proofs of known facts.

Vocabulary

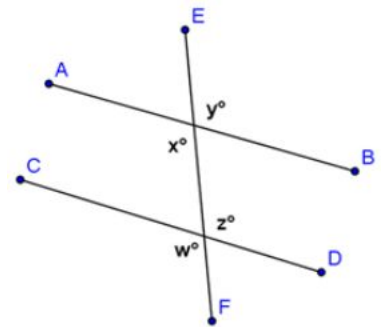
Watch the video and take notes on the new terms below:

- Geometric Proof:

- Theorem:

Prove that Corresponding Angles are Congruent

Using the Vertical Angles Theorem, the Alternate Interior Angles Theorem, and the diagram to the right, prove that corresponding angles are congruent.

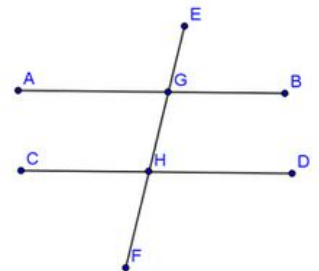


Given: $\overline{AB} \parallel \overline{CD}$ Prove: corresponding angles are congruent

Statement	Reason

Same-Side Interior Angles

Use any or all of the 3 facts that we now have to prove that *interior angles on the same side of the transversal are **supplementary***. Add any necessary labels to the diagram below.

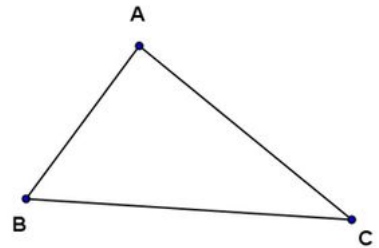


Given: $\overline{AB} \parallel \overline{CD}$ Prove: Same-Side Interior Angles are Supplementary

Statement	Reason

Triangle Sum

Using the facts that we already know, prove that the 3 interior angles of a triangle add up to 180 degrees. For this proof, you will need to draw an auxiliary line, parallel to one of the triangle's sides and passing through the vertex opposite that side. Add any necessary labels and write out your proof.



Prove: The 3 interior angles of a triangle add up to 180 degrees

Statement	Reason

Video: Eratosthenes

Watch the video about Eratosthenes and his discovery.

Transversal Theorems and Their Converse

Here is a list of theorems about parallel lines, but this time the converses are added as well. The converses help us prove that lines are parallel. Read these closely and use them on your exit ticket.

Original	Converse
If two parallel lines are cut by a transversal, then alternate interior angles are congruent.	If two lines are cut by a transversal such that alternate interior angles are congruent, then the lines are parallel.
If two parallel lines are cut by a transversal, then corresponding angles are congruent.	If two lines are cut by a transversal such that corresponding angles are congruent, then the lines are parallel.
If two parallel lines are cut by a transversal, then interior angles on the same side of the transversal add to 180° .	If two lines are cut by a transversal such that interior angles on the same side of the transversal add to 180° , then the lines are parallel.

Exit Ticket:

Given: $\angle C$ and $\angle D$ are supplementary. $m\angle B = m\angle D$.

Prove: $\overline{AB} \parallel \overline{CD}$

Statement	Reason

