Geometry

3.3 Prove Lines are Parallel

## Corresponding Angles Converse

transversals

corresponding

If 2 lines are cut by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ so the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ∠s are ≅, then the lines are ||.

## Alternate Interior Angles Converse

congruent

alternate interior

If 2 lines are cut by tranversals, so the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_∠s are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, then the lines are ||.

## Alternate Exterior Angles Converse

||

alternate exterior

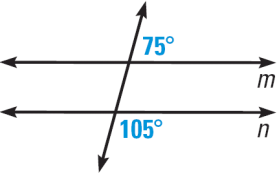
If 2 lines are cut by transversals, so the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ∠ are ≅, then the lines are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

## Consecutive Interior Angles Converse

||

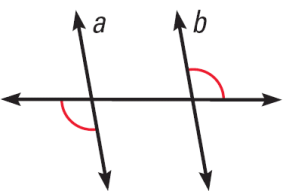
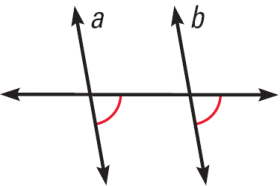
consecutive interior

If 2 lines are cut by transversals, so the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ∠ are supp., then the lines are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

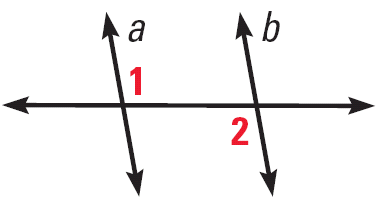
Is there enough information to conclude that m || n?

Yes, corresponding angles will both be 75°

Can you prove that the lines are parallel? Explain.



***m* ∠1 + *m* ∠2 = 180°**



No, should be ∠1 ≅ ∠2 by alt int angles converse

Yes, alt ext angles converse

Yes, corres angles converse

## Transitive Property of Parallel Lines

parallel

parallel

If two lines are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the same line, then they are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to each other.

# Instructions for Paragraph proofs

Paragraph proofs

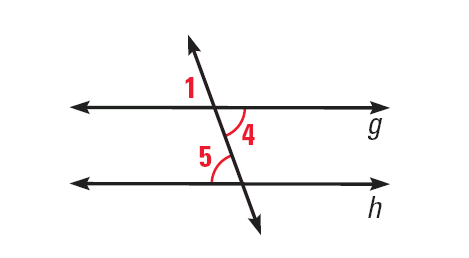
sentences

* The proof is written in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

reasons

statements

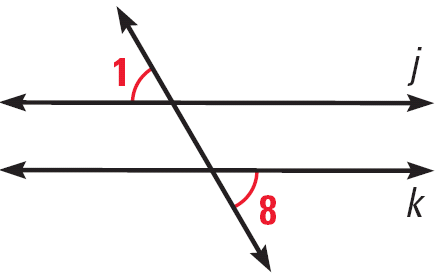
* Still need to have the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Write a paragraph proof to prove that if 2 lines are cut by a transversal so that the alternate interior ∠s are ≅, then the lines are ||.

Given: ∠4 ≅ ∠5

Prove: g || h

It is given that ∠4 ≅ ∠5. By the vertical angle congruence theorem, ∠1 ≅ ∠4. Then by the Transitive Property of Congruence, ∠1 ≅ ∠5. So, by the Corresponding Angles Converse, g || h.

If you use the diagram at the right to prove the Alternate Exterior Angles Converse, what GIVEN and PROVE statements would you use?

Given: ∠1 ≅ ∠8

Prove: j || k

Assignment: 165 #2-28 even, 34, 36, 40-54 even = 24 total