Geometry

3.2 Use Parallel Lines and Transversals

# Postulate and Theorems

## Corresponding Angles Postulate

transversals

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

## Alternate Interior Angles Theorem

alternate interior

transversals

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

## Alternate Exterior Angles Theorem

alternate exterior

transversals

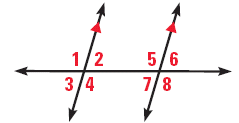
If 2 || lines are cut by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, then the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_∠s are ≅

## Consecutive Interior Angles Theorem

supplementary

transversals

If 2 || lines are cut by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, then the consecutive Interior ∠s are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

If m∠1 = 105°, find m∠4, m∠5, and m∠8. Tell which postulate or theorem you use in each case.

m∠4 = 105; vertical angles are congruent

m∠5 = 105; corresponding angles postulate

m∠8 = 105; alt ext angles theorem

If m∠3 = 68° and m∠8 = (2x + 4)°, what is the value of x?

m∠3 = m∠2

m∠8 = m∠5

∠2 and ∠5 are cons int angles and are supp

2x + 72 = 180

2x = 108

x = 54

Prove that if 2 || lines are cut by a transversal, then the exterior angles on the same side of the transversal are supplementary.

Given: p || q

Prove: ∠1 and ∠2 are supplementary.

|  |  |
| --- | --- |
| Statements | Reasons  q  p  ℓ  1  2  3 |
| p || q | (given) |
| m∠1 + m∠3 = 180 | (linear pair post) |
| ∠2 ≅ ∠3 | (corrs angles post) |
| m∠2 = m∠3 | (def ≅) |
| m∠1 + m∠2 = 180 | (substitution) |
| ∠1 and ∠2 are supp | (def supp) |

Assignment: 157 #2-32 even, 36-52 even = 25 total

Extra Credit: 160 #2, 6 = +2