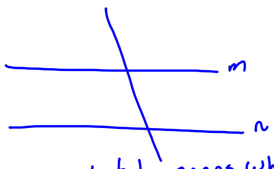
# 3.3 Parallel Lines and Transversals

from Sec 1 we talked about transversals




what happens when m ∥ n

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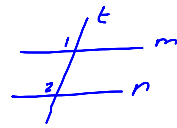
## Corresponding Angles Pos




if m ∥ n then $\angle 1 \cong \angle 2$

If a transversal t intersects m, n where m ∥ n
Then the corresponding angles are congruent

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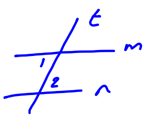
## Theorem 3.4 Alternate Int ∠ thm




if m ∥ n then $\angle 1 \cong \angle 2$

If a transversal t intersects m, n where m ∥ n
then the alt interior angles are congruent

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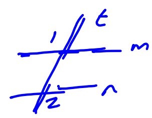
## Theorem 3.4 Alternate Ext ∠ thm




if m ∥ n then $\angle 1 \cong \angle 2$

If a transversal t intersects m, n where m ∥ n
then the alt exterior angles are congruent

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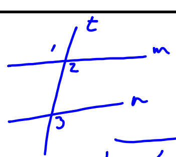


Given m ∥ n
Prove $\angle 1 \cong \angle 3$

Alt Ext ∠'s

| | |
|---|---|
| 1. $\angle 1 \cong \angle 2$ | 1. Vert ∠s Thm |
| 2. m ∥ n | 2. Given |
| 3. $\angle 2 \cong \angle 3$ | 3. Corresponding ∠'s Pos |
| 4. $\angle 1 \cong \angle 3$ | 4. Transitive Prop |

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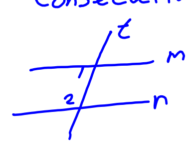
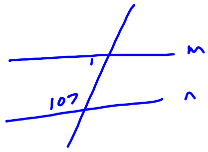
## Consecutive Interior ∠'s Thm




if m ∥ n then $m\angle 1 + m\angle 2 = 180$

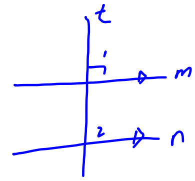
If a transversal t intersects m, n where m ∥ n
then the consecutive interior ∠'s are supplementary




$m \parallel n$

$m\angle 1 + 107 = 180$
$\quad\; -107 \quad\; -107$
$m\angle 1 = 73$

If $t \perp m$ and $m \parallel n$
then $t \perp n$




| | |
|---|---|
| 1. $t \perp m$ | Given |
| 2. $\angle 1$ is a rt $\angle$ | Def of $\perp$ |
| 3. $m \parallel n$ | Given |
| 4. $\angle 1 \cong \angle 2$ | Corresponding $\angle$'s |
| 5. $\angle 2$ is a rt $\angle$ | Substitution |
| 6. $t \perp n$ | def of $\perp$ |

P 146 – 148
4–26 even
#27 do as flow proof
28, 30