Cornell Notes Main Ideas/Questions	Name:_____ Date:_____ 3-2 Title of Notes: **Proving Parallel Lines**
conditional $p \rightarrow q$ Converse $q \rightarrow p$	To prove lines are parallel use the CONVERSE of the postulate and theorems that used parallel line to prove congruency.
3.1	***Corresponding ∠'s Postulate:*** • If lines are parallel then corresponding ∠'s are $\cong$ (p, q)
3.2	***Converse of Corresponding ∠'s Postulate:*** • If corresponding angles are congruent, then the lines are // (q, p)
3.1	***Alternate Interior ∠'s Theorem:*** • If lines are parallel, then the alternate interior angles are $\cong$
3.2	***Converse of Alternate Interior ∠'s Theorem:*** • If alt. interior ∠s are $\cong$ then the lines are // .
(To prove angles) 3.1	***Alternate Exterior ∠'s Theorem:*** • If lines are parallel, then the alt. exterior ∠s are $\cong$
3.2 (To prove lines //)	***Converse of Alternate Exterior ∠'s Theorem:*** • If alt. exterior ∠s are $\cong$ then the lines are // .
3.1	***Same-Side Interior ∠'s Theorem:*** • If lines are parallel, then the same side interior angles are supplementary (adds to 180°)
3.2	***Converse of Same-Side ∠'s Theorem:*** • If the same side int. ∠s are supplementary then the lines are // .

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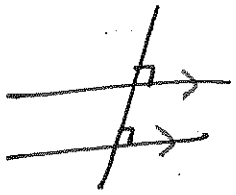
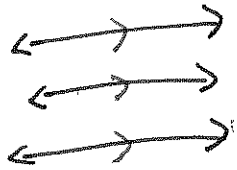
4. 

5. 

Ways to Prove Two Lines Parallel

1. Show that a pair of corresponding angles are congruent.
2. Show that a pair of alternate interior angles are congruent.
3. Show that a pair of same-side interior angles are supplementary.
4. In a plane show that both lines are perpendicular to a third line.
5. Show that both lines are parallel to a third line.

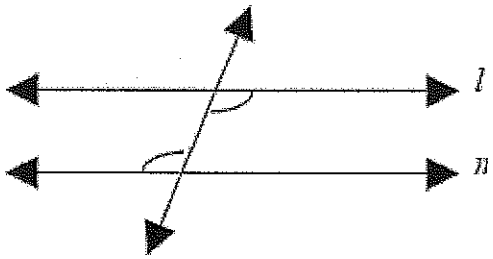
Practice Proving Parallel (II)

Determine whether the lines are parallel. Explain why or Why not for each answer.

1. yes l ∥ n

Justification:

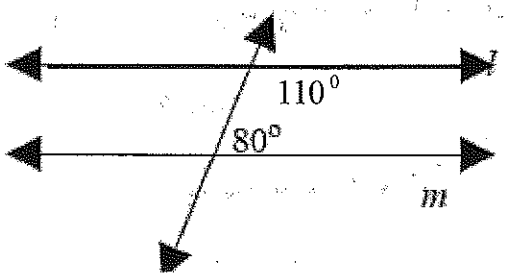
converse of alt. int. ∠s theorem



2. L is not ∥ to m

Justification:

same side int. ∠s are not supp.



3. GIVEN: a // b and ∠10 ≅ ∠7

PROVE: c // d.

If ~~[illegible]~~, then ∠7 ≅ ∠15 (corresponding)

c ∥ d.