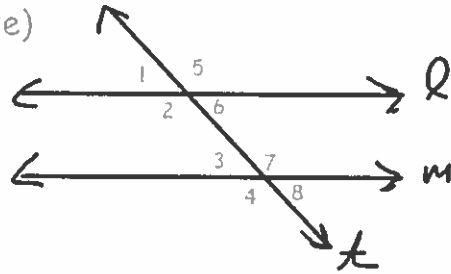


Corresponding Angles Converse (Postulate)

Given:  $\angle 1 \cong \angle 3$  or  $\angle 2 \cong \angle 4$  or  
 $\angle 5 \cong \angle 7$  or  $\angle 6 \cong \angle 8$

Conclusion:

$l \parallel m$



Alternate Interior Angles Converse (Theorem)

Given:  $\angle 2 \cong \angle 7$

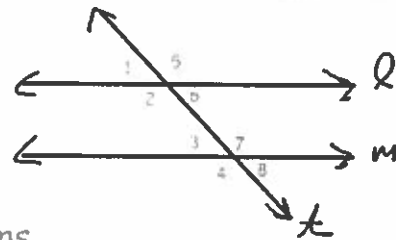
Prove:  $l \parallel m$

	Statements	Reasons
1	$\angle 2 \cong \angle 7$	Given
2	$\angle 4 \cong \angle 7$	Vert. $\angle$ s Thm
3	$\angle 2 \cong \angle 4$	Trans. Prop. of $\cong$
4	$l \parallel m$	Corr. $\angle$ s Conv.

Same Side Interior Angles Converse (Theorem)

Given:  $\angle 2$  and  $\angle 3$  are supp.

Prove:  $l \parallel m$

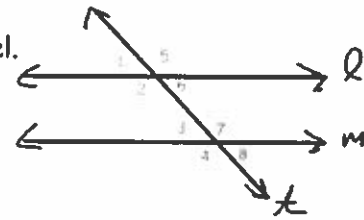


	Statements	Reasons
1	$\angle 2$ and $\angle 3$ are supp.	Given
2	$\angle 2$ and $\angle 1$ are supp.	$\angle$ Add. Post.
3	$\angle 1 \cong \angle 3$	$\cong$ Supp. Thm
4	$l \parallel m$	Corr. $\angle$ s Converse

If two lines are cut by a transversal and alternate exterior angles are congruent, then the lines are parallel.

Given:  $\angle 1 \cong \angle 8$

Prove:  $l \parallel m$

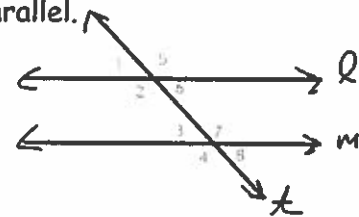


	Statements	Reasons
1	$\angle 1 \cong \angle 8$	Given
2	$\angle 8 \cong \angle 3$	Vert. $\angle$ s Thm
3	$\angle 1 \cong \angle 3$	Trans. Prop. of $\cong$
4	$l \parallel m$	Corr. $\angle$ s Converse

If two lines are cut by a transversal and the same-side exterior angles are supplementary, then the lines are parallel.

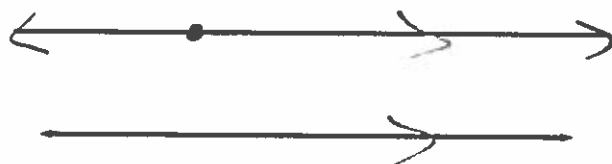
Given:  $\angle 1$  is supp. to  $\angle 4$

Prove:  $l \parallel m$

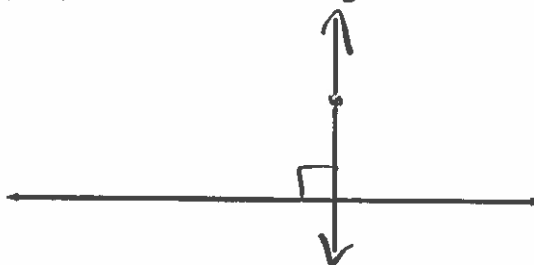


	Statements	Reasons
1	$\angle 1$ is supp. to $\angle 4$	Given
2	$\angle 4$ is supp. to $\angle 3$	$\angle$ Add. Post.
3	$\angle 1 \cong \angle 3$	$\cong$ Supp. Thm.
4	$l \parallel m$	Corr. $\angle$ s Converse

Parallel Postulate - Through a point outside a line, there is exactly one line parallel to the given line.



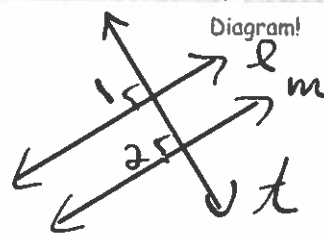
Perpendicular Postulate - Through a point outside a line, there is exactly one line perpendicular to the given line.



In a plane, two lines perpendicular to the same line are Parallel.

Given:  $l \perp t, m \perp t$

Prove:  $l \parallel m$

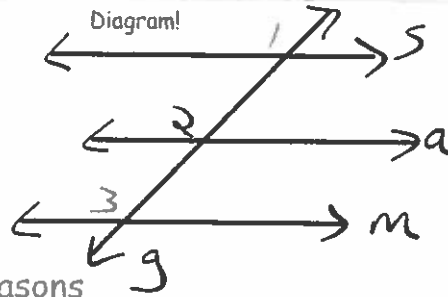


Statements	Reasons
1 $l \perp t, m \perp t$	Given
2 $\angle 1$ and $\angle 2$ are Rt. $\angle$ s	Def. of $\perp$
3 $\angle 1 \cong \angle 2$	Rt. $\angle$ s Thm
4 $l \parallel m$	Corr $\angle$ s Converse

Two lines parallel to a third line are Parallel to each other.

Given:  $s \parallel m, a \parallel m$

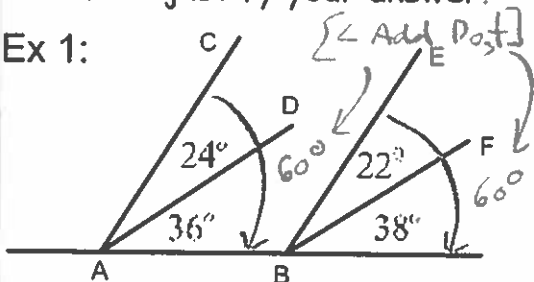
Prove:  $s \parallel a$



Statements	Reasons
1 $s \parallel m, a \parallel m$	Given
2 $\angle 1 \cong \angle 3, \angle 2 \cong \angle 3$	Corr. $\angle$ s Post.
3 $\angle 1 \cong \angle 2$	Trans. Prop. $\cong$
4 $s \parallel a$	Corr. $\angle$ s Converse
5	

Which segments are parallel?  
You must justify your answer.

Ex 1:



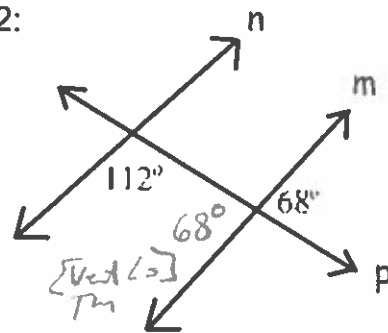
$\overline{AD}$  is not  $\parallel$   $\overline{BF}$  [Corr.  $\angle$ s not  $\cong$ ]

$\overline{AC} \parallel \overline{BE}$  [Corr.  $\angle$ s Conv.]

Are any lines parallel?

You must justify your answer.

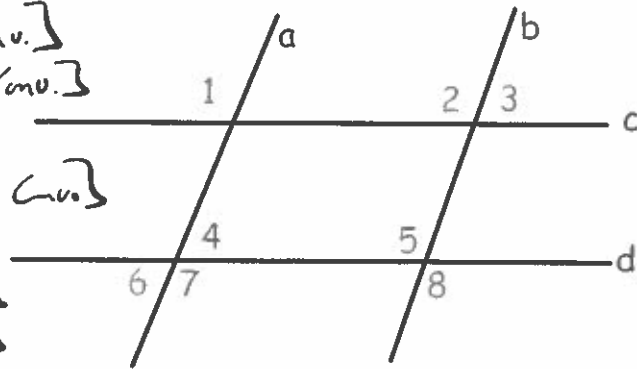
Ex 2:



$n \parallel m$  [S.S. Int.  $\angle$ s] Converse

What two lines (if any) are parallel if the given information is true? Provide a reason for your conclusion.

- $\angle 1 \cong \angle 2$   $\{a \parallel b, \text{Corr. } \angle\text{s Conv.}\}$
- $\angle 1 \cong \angle 7$   $\{c \parallel d, \text{Alt. Ext. } \angle\text{s Conv.}\}$
- $\angle 4 \cong \angle 6$   $\{\text{Not enough Info.}\}$
- $\angle 5 \cong \angle 7$   $\{a \parallel b, \text{Alt. Int. } \angle\text{s Conv.}\}$
- $\angle 5 \cong \angle 3$   $\{\text{Not enough Info.}\}$
- $\angle 8 \cong \angle 7$   $\{a \parallel b, \text{Corr. } \angle\text{s Conv.}\}$
- $\angle 8 \cong \angle 3$   $\{\text{Not enough Info.}\}$
- $\angle 4 \cong \angle 5$   $\{\text{Not enough Info.}\}$



- $\angle 1$  is supplementary to  $\angle 2$   $\{\text{Not enough info.}\}$
- $\angle 4$  is supplementary to  $\angle 5$   $\{a \parallel b, \text{SS Int. } \angle\text{s Conv.}\}$
- $\angle 6$  is supplementary to  $\angle 8$   $\{a \parallel b, \text{SS Ext. } \angle\text{s Conv.}\}$
- $\angle 6$  is supplementary to  $\angle 7$   $\{\text{Not enough Info.}\}$
- $\angle 3$  is supplementary to  $\angle 8$   $\{c \parallel d, \text{SS Ext. } \angle\text{s Conv.}\}$
- $\angle 6$  is supplementary to  $\angle 3$   $\{\text{Not enough Info.}\}$

## Assignment #24

R and TN p. 83-85

p. 86 CE #1-11, 19-20