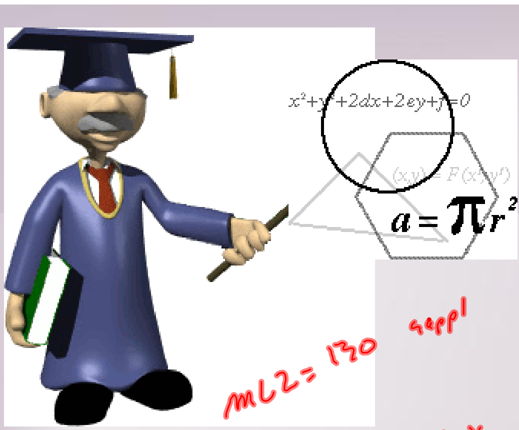
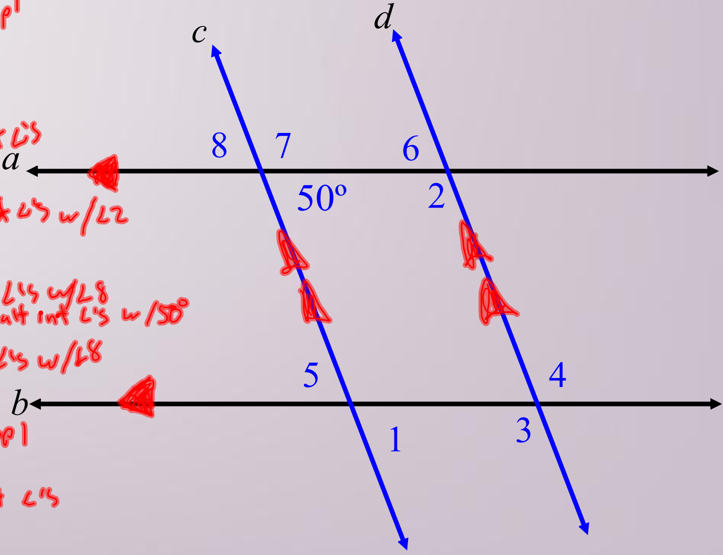


Warm up

$m\angle 2 = 130$ supp'l



a) $m\angle 3 =$ 130 vert ∠'s

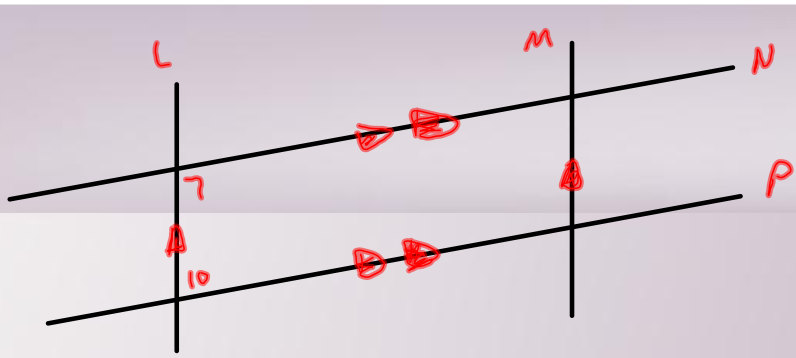
b) $m\angle 4 =$ 130 alt int ∠'s w/∠2

c) $m\angle 5 =$ 50 corr ∠'s w/∠8 or alt int ∠'s w/50°

d) $m\angle 6 =$ 50 corr ∠'s w/∠8

e) $m\angle 7 =$ 130 supp'l

f) $m\angle 8 =$ 50 vert ∠'s



$m\angle 10 = x - 24$

$m\angle 7 = ?$

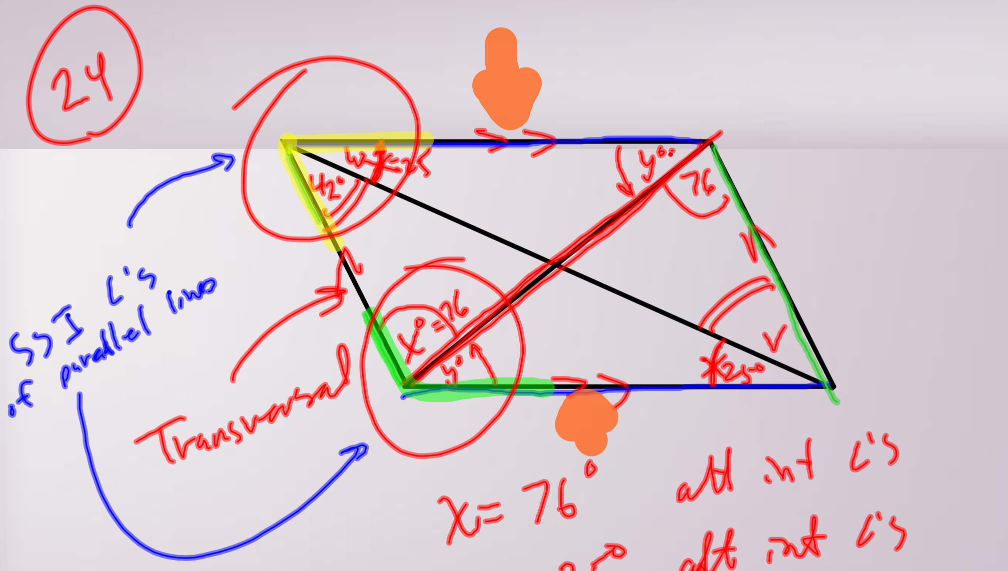
$m\angle 7 + m\angle 10 = 180$

$m\angle 7 + x - 24 = 180$

$\quad - x + 24 \quad\quad - x + 24$

$m\angle 7 = 180 - x + 24$

$= 204 - x$



$x = 76°$ alt int ∠'s

$w = 25°$ alt int ∠'s

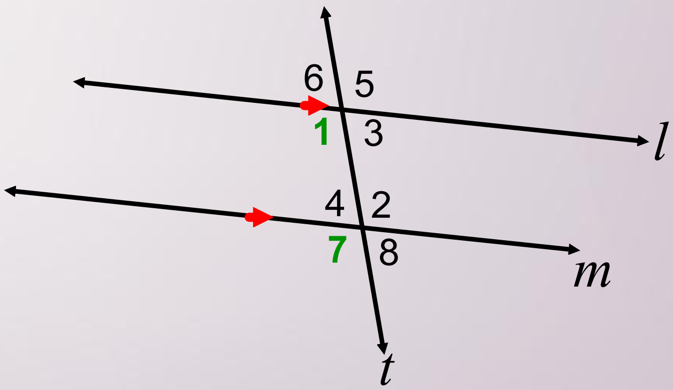
$V = 42°$ alt int ∠'s

$(\underbrace{\cancel{25+42}}_{67}) + (y+76) = 180$

$y + 143 = 180 \quad y = 37$

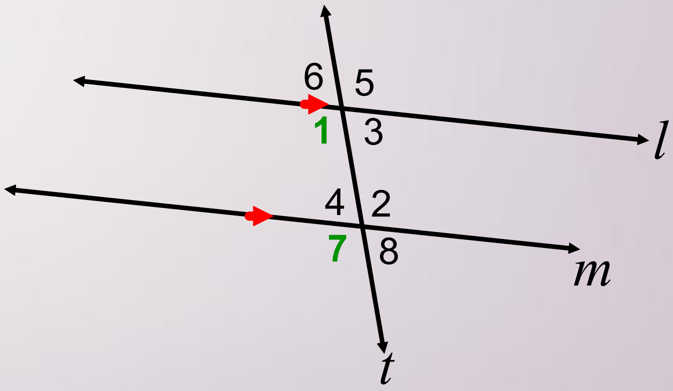
Postulate 3-1*: *Corresponding Angles Postulate

If 2 || lines are cut by a transversal, then corr∠'s are ≅



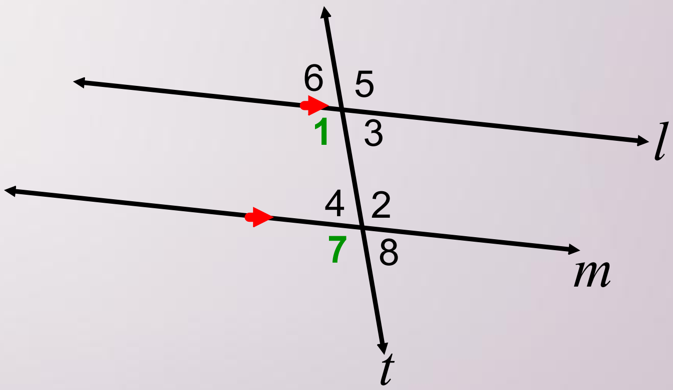
Postulate 3-1*: *Corresponding Angles Postulate

If 2 || lines are cut by a transversal, then corr$\angle$'s are $\cong$



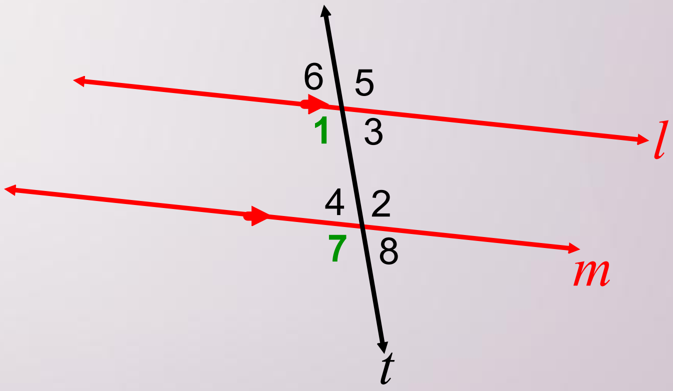
Postulate 3-1*: *Corresponding Angles Postulate

If 2 || lines are cut by a transversal, **then and only then** are corr$\angle$'s $\cong$



Postulate 3-1*: *Corresponding Angles Postulate

If 2 $\parallel$ lines are cut by a transversal, **then and only then** are corr$\angle$'s $\cong$



Now, form the converse of the corr$\angle$'s postulate...

Post 3-1 Corr $\angle$'s Thm

If 2 $\parallel$ lines are cut by a transversal, then corr$\angle$'s are $\cong$

Post 3-2 Conv Corr $\angle$'s Thm

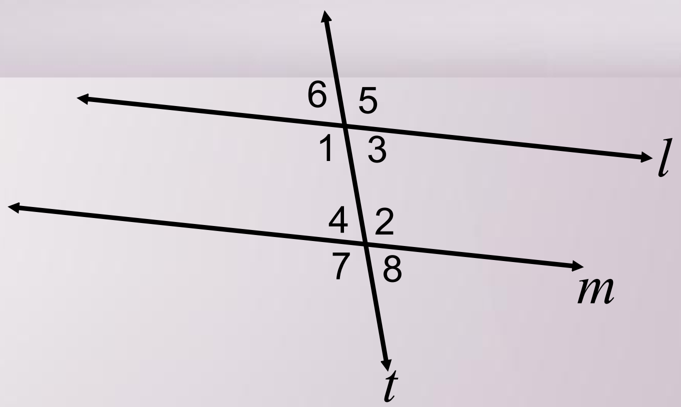
If 2 lines cut by a transversal form $\cong$ corr$\angle$'s, then the 2 lines are parallel.

Conv of Corr ∠'s Post

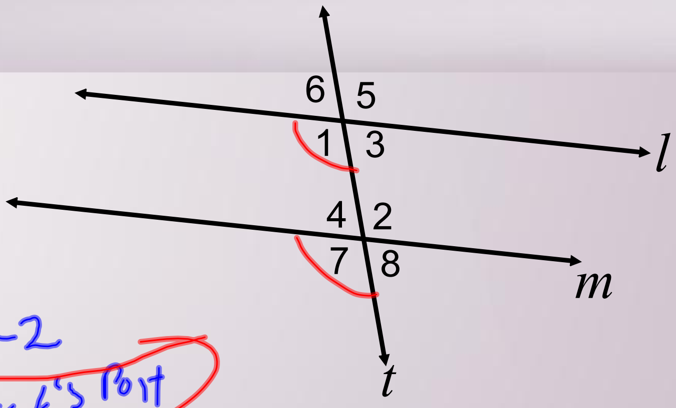
Postulate 3-2*: *Converse of Corresponding Angles Postulate

If corr ∠'s ≅, then the 2 transversed lines are ||

Are these lines ||?



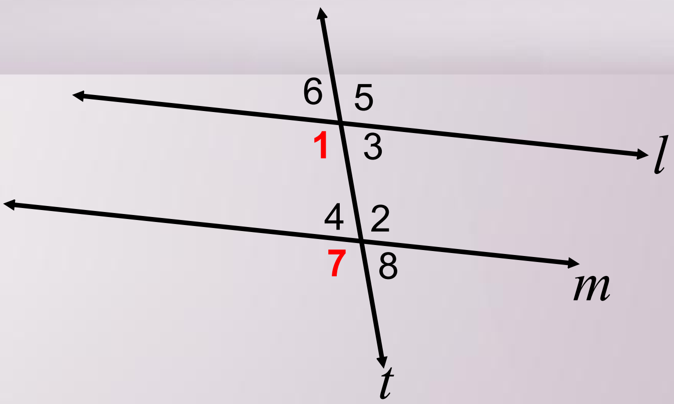
$\angle 1 \cong \angle 7$ ... Are these lines $\parallel$?



Post 3-2

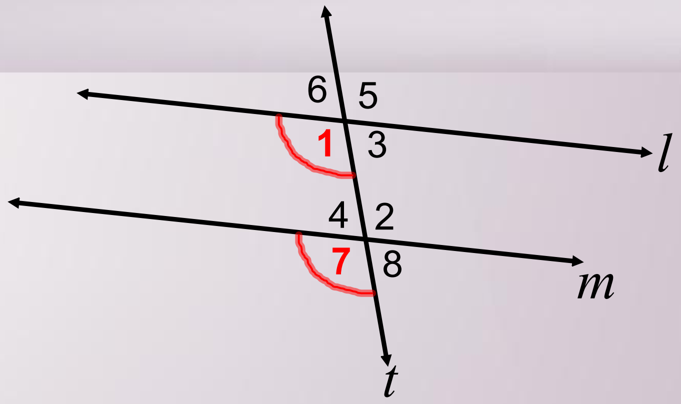
Conv Corr ∠'s Post

$\angle 1 \cong \angle 7$ ... Are these lines $\parallel$?



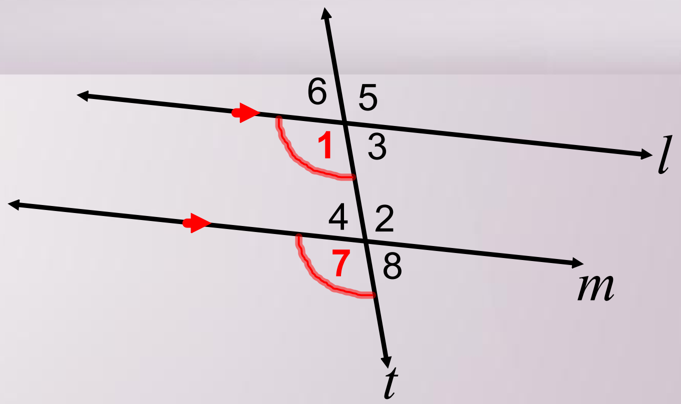
Classify the two angles...

$\angle 1 \cong \angle 7$ ... Are these lines $\parallel$?



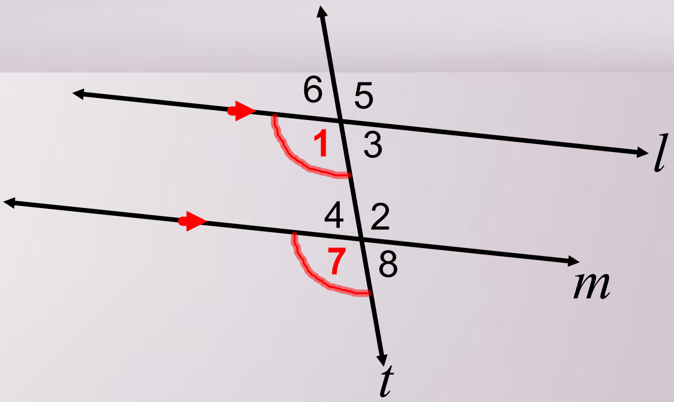
$\angle 1$ & $\angle 7$ are $\cong$ corr$\angle$'s $\therefore$ ______?______

$\angle 1 \cong \angle 7$ ... Are these lines $\parallel$?



$\angle 1$ & $\angle 7$ are $\cong$ corr$\angle$'s $\therefore$ $l \parallel m$ by ______?______

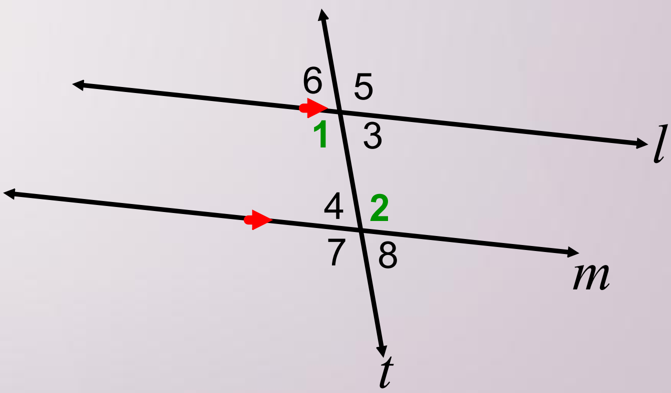
$\angle 1 \cong \angle 7$ ... Are these lines $\parallel$?



$\angle 1$ & $\angle 7$ are $\cong$ corr$\angle$'s $\therefore$ $l \parallel m$ by Post 3-2, Conv Corr$\angle$'s Post

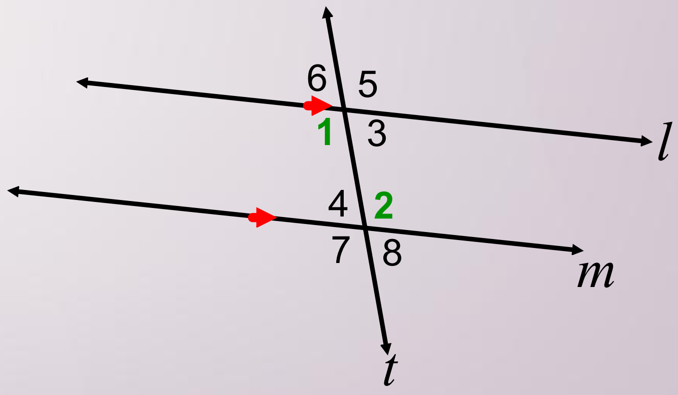
Theorem 3-1*: *Alternate Interior Angles Theorem from Fri.

If 2 $\parallel$ lines are cut by a transversal, then alt int$\angle$'s are $\cong$



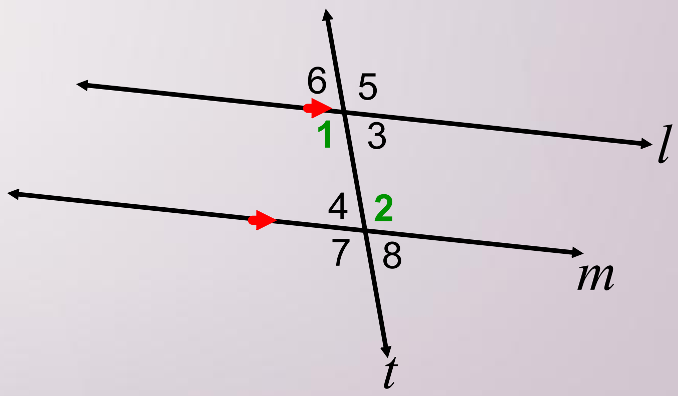
Theorem 3-1: ***Alternate Interior Angles Theorem***

If 2 || lines are cut by a transversal, then alt int∠'s are ≅



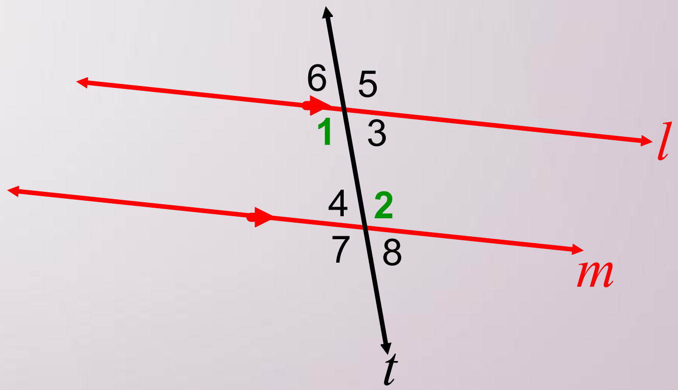
Theorem 3-1: ***Alternate Interior Angles Theorem***

If 2 || lines are cut by a transversal, **then and only then** are alt int∠'s ≅



Theorem 3-1: ***Alternate Interior Angles Theorem***

If 2 || lines are cut by a transversal, **then and only then** are alt int∠'s ≅



Now, form the converse of the alt int∠'s theorem...

Thm 3-1 Alt Int ∠ Thm

If 2 || lines are cut by a transversal, then alt int∠'s are ≅

Thm 3-3 Conv Alt Int ∠ thm

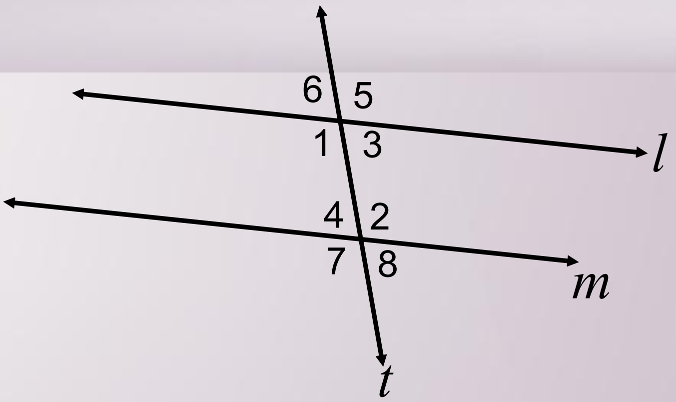
If 2 lines cut by a transversal form ≅ alt int∠'s, then the 2 lines are parallel.

Conv Alt Int ∠ Thm

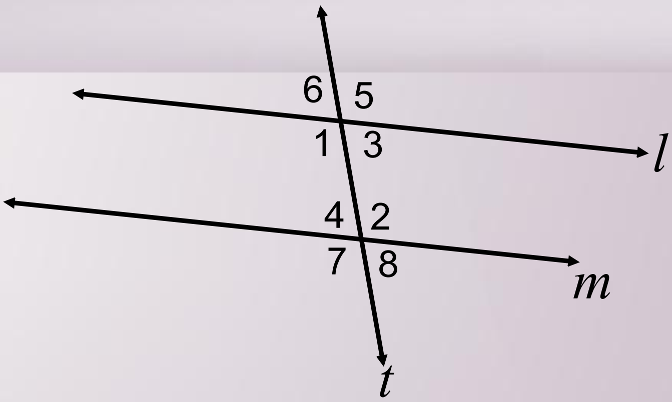
Theorem 3-3*: *Converse of Alternate Interior Angles Theorem

If alt int ∠'s $\cong$, then the 2 transversed lines are ||

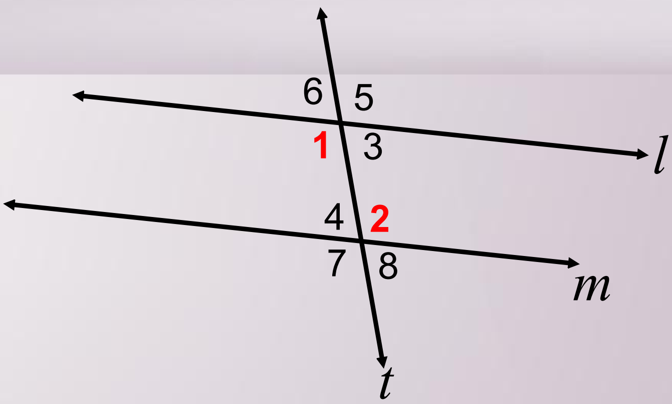
Are these lines ||?



$\angle 1 \cong \angle 2$ ... Are these lines $\parallel$?

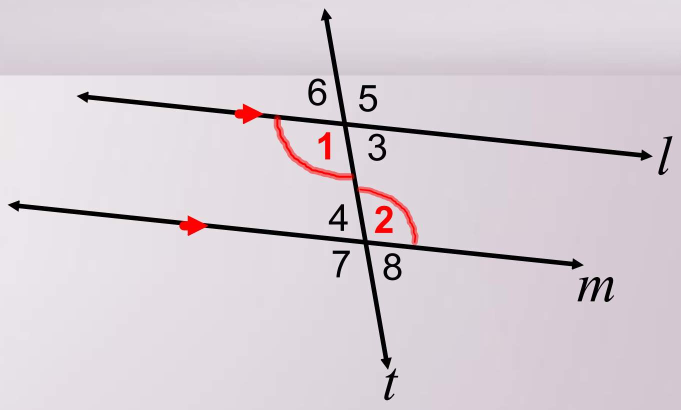


$\angle 1 \cong \angle 2$ ... Are these lines $\parallel$?



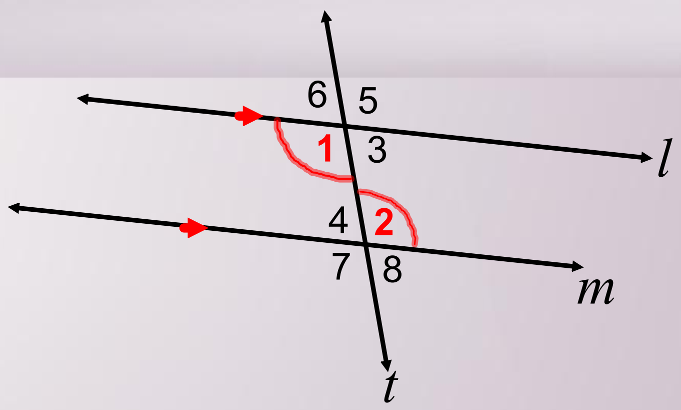
Classify the two angles...

$\angle 1 \cong \angle 2$ ... Are these lines $\parallel$?



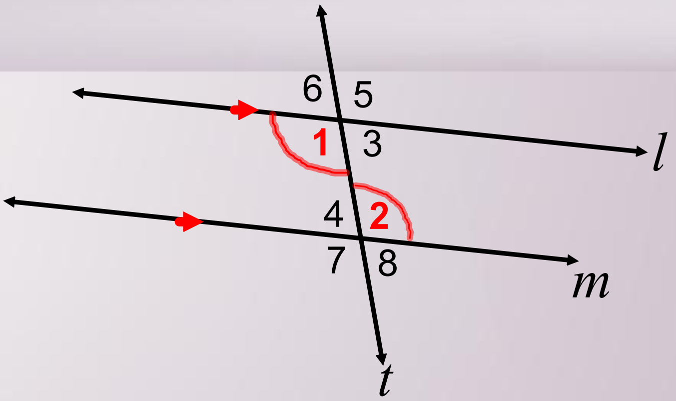
$\angle 1$ & $\angle 2$ are $\cong$ alt int$\angle$'s $\therefore$ ___?___

$\angle 1 \cong \angle 2$ ... Are these lines $\parallel$?



$\angle 1$ & $\angle 2$ are $\cong$ alt int$\angle$'s $\therefore$ $l \parallel m$ by ___?___

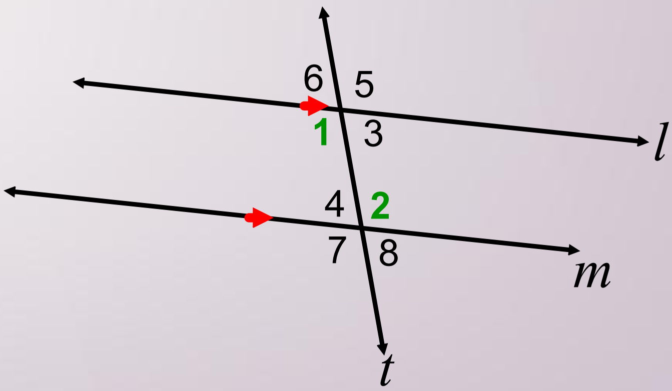
$\angle 1 \cong \angle 2$ ... Are these lines $\parallel$?



$\angle 1$ & $\angle 2$ are $\cong$ alt int$\angle$'s $\therefore$ $l \parallel m$ by Thm 3-3 Conv Alt Int$\angle$'s Thm

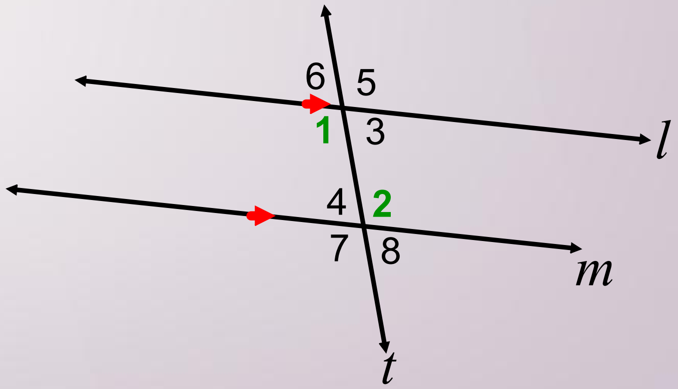
Thm 3-2 ***Theorem 3-2***: ***Same-side Interior Angles Theorem (SSI$\angle$ Thm)***

If 2 $\parallel$ lines are cut by a transversal, then same side int$\angle$'s are supplemental



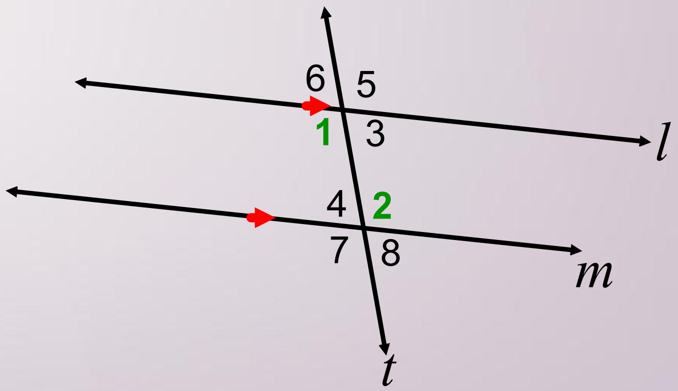
Theorem 3-2**: **Same-side Interior Angles Theorem (SSI∠ Thm)

If 2 || lines are cut by a transversal, then same side int∠'s are supplemental



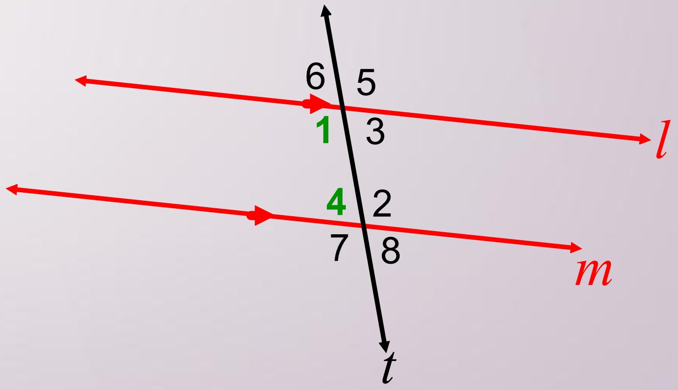
Theorem 3-2**: **Same-side Interior Angles Theorem (SSI∠ Thm)

If 2 || lines are cut by a transversal, **then and only then** are same side int∠'s supplemental



Theorem 3-2**: **Same-side Interior Angles Theorem (SSI∠ Thm)

If 2 || lines are cut by a transversal, **then and only then** are same side int∠'s supplemental



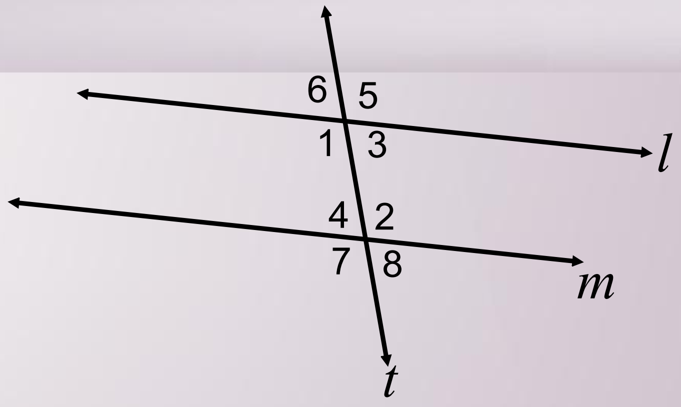
Now, form the converse of the same-side int∠'s theorem...

If 2 || lines are cut by a transversal, then SSI∠'s are supplemental

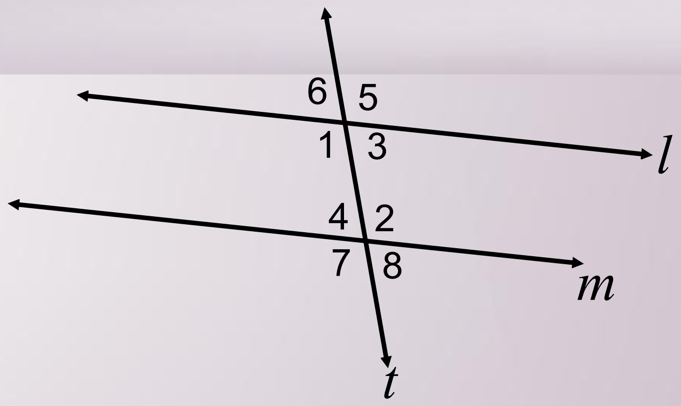
Thm 3-4 Conv SSI ∠'s Thm

If 2 lines cut by a transversal form supplemental SSI∠'s, then the 2 lines are parallel.

Are these lines ||?

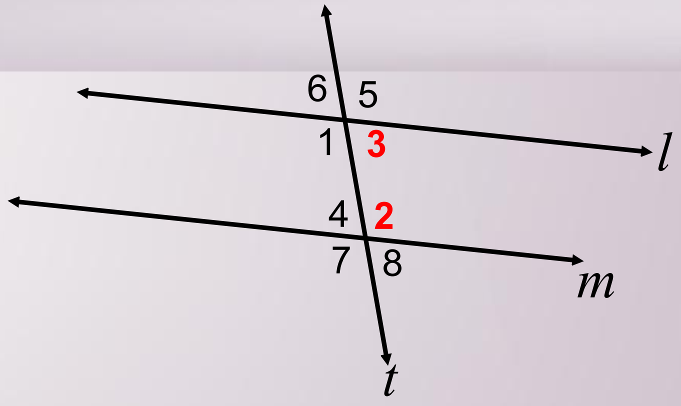


$m\angle 3 + m\angle 2 = 180$ ... Now are these lines ||?



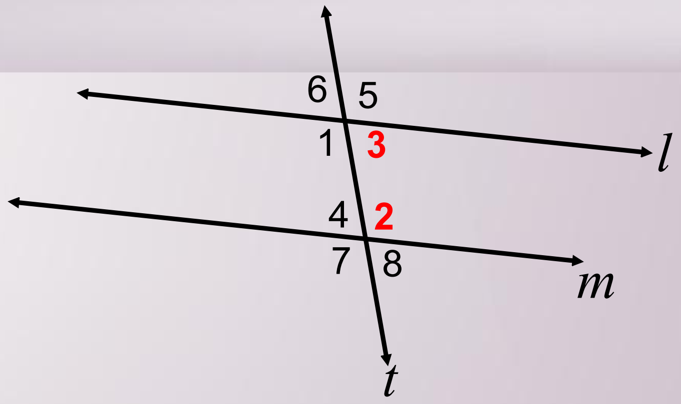
Classify the two angles...

$m\angle 3 + m\angle 2 = 180$ ... Now are these lines $\parallel$?



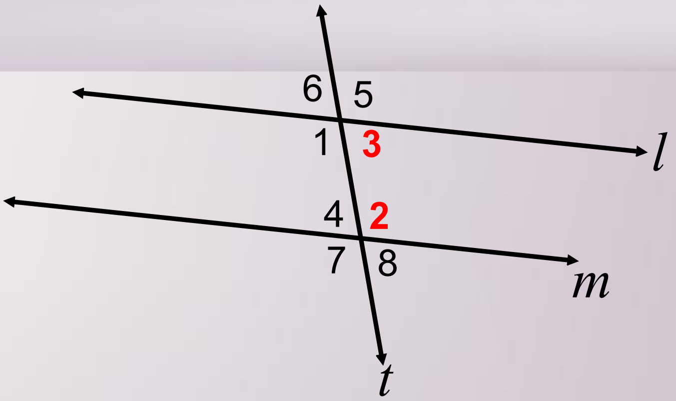
$\angle 3$ & $\angle 2$ are supplemental $\angle$'s $\therefore$ ____?____

$m\angle 3 + m\angle 2 = 180$ ... Now are these lines $\parallel$?



$\angle 3$ & $\angle 2$ are supplemental $\angle$'s $\therefore$ $l \parallel m$ by ____?____

$m\angle 3 + m\angle 2 = 180$ ... Now are these lines $\parallel$?

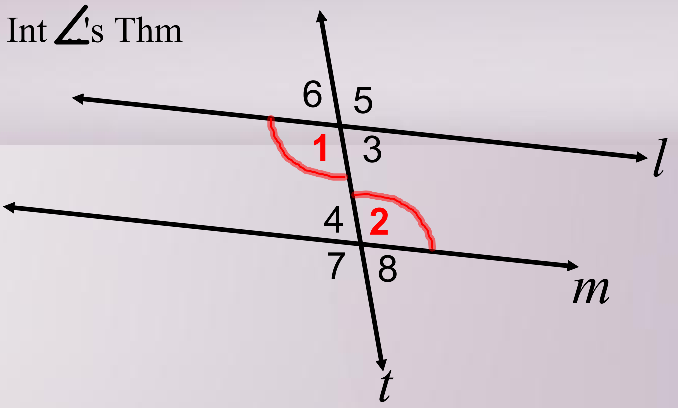


$\angle 3$ & $\angle 2$ are supplemental $\angle$'s $\therefore$ $l \parallel m$ by Thm 3-4 Conv SSI $\angle$ Thm

Prove Thm 3-3, Conv Alt Int $\angle$'s Thm

Given: $\angle 1 \cong \angle 2$

Prove: $l \parallel m$



$m\angle 1 \cong m\angle 2$ Given

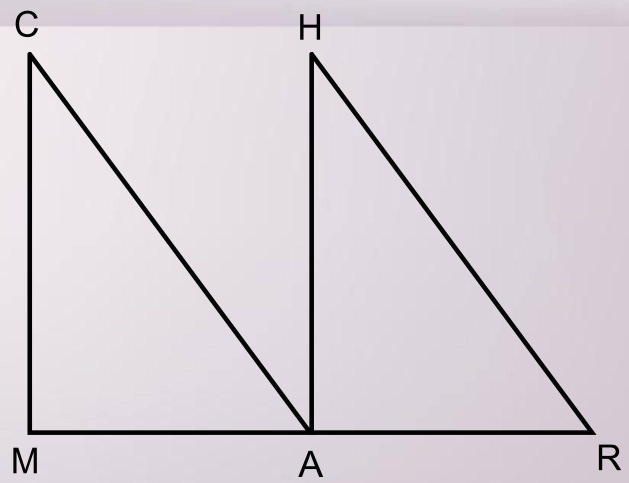
$m\angle 2 \cong m\angle 7$ vert Ang

$m\angle 1 \cong m\angle 7$ transitive prop of cong

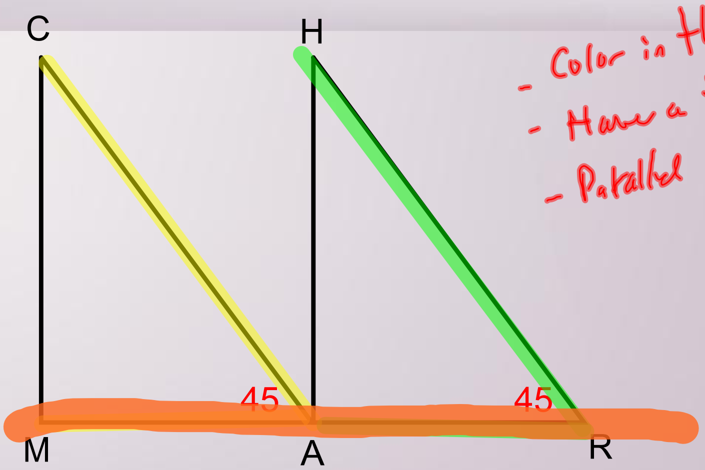
QED

Parker

Which lines/segs are ||? Justify.

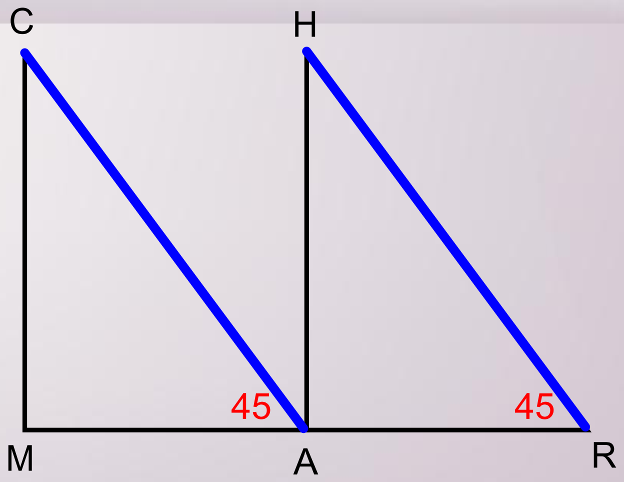


Which lines/segs are ||? Justify.

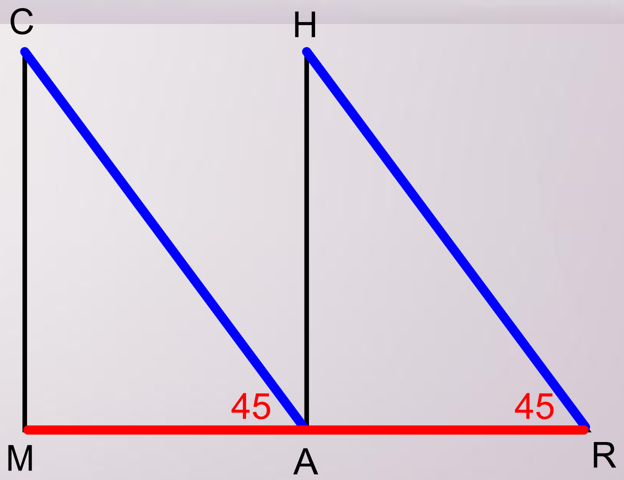


- Color in the ∠ sides
- Have a transversal?
- Parallel line candidates?

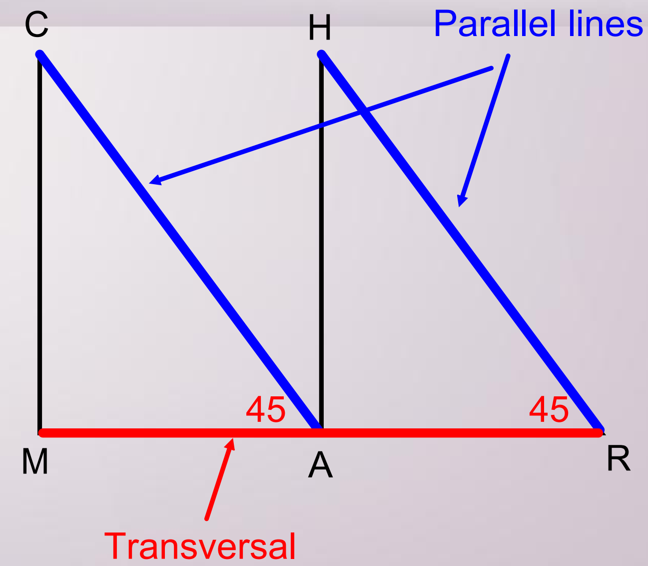
Which lines/segs are ||? Justify.

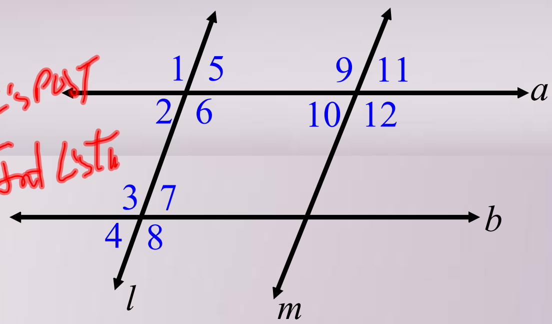


Which lines/segs are ||? Justify.



Which lines/segs are ||? Justify.





a) if $\angle 2$, $\angle 3$ suppl, then ... a||b Conv SSI ∠'s Thm

b) if $\angle 4$, $\angle 8$ suppl, then ... NP

c) if $\angle 1 \cong \angle 3$, then ... a||b Conv Corr ∠'s Post

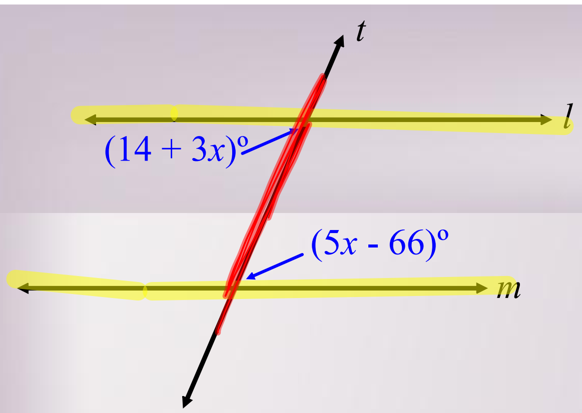
d) if $\angle 3 \cong \angle 6$, then ... a||b Conv Alt Int ∠'s Thm

e) if $\angle 1 \cong \angle 6$, then ... NP

f) if $\angle 11 \cong \angle 7$, then ... NP

g) if $\angle 1 \cong \angle 12$, then ... l || m Conv Corr ∠'s Post

f) if $\angle 7$, $\angle 9$ suppl, then ... NP



Find x such that $l \parallel m$.

They are Alt Int ∠'s ...

They need to be ≅ for $l \parallel m$.

$$(14 + 3x) = (5x - 66)$$

$$80 = 2x$$

$$40 = x$$

L3-2 HW Problems:

Pg 125, #1-15 odd
16-23
27
29
33
35
51-57