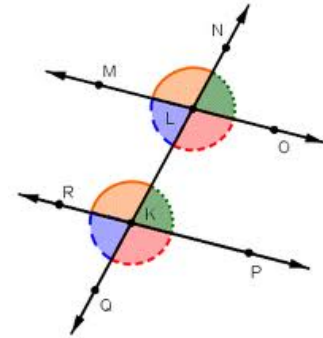
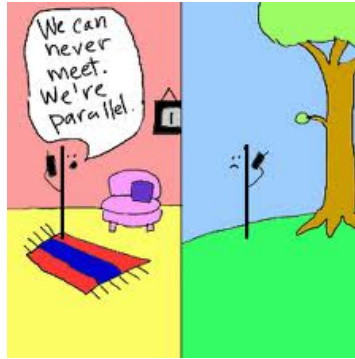


3.3 Prove Lines Are Parallel

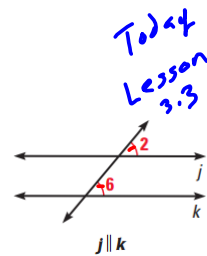
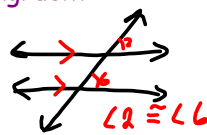
Goal: Use angle relationships to prove that lines are parallel.

- If corresponding \angle s are \cong , then lines are \parallel
- If alt int \angle s are \cong , then lines are \parallel
- If alt ext \angle s are \cong , then lines are \parallel
- If consecutive int \angle s are supp, then lines are \parallel

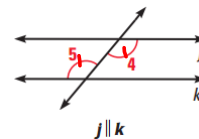


Converse Theorems-

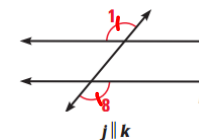
if two lines are cut by a transversal so the corresponding angles are congruent



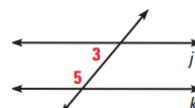
(or) alternate interior angles are congruent



(or) alternate exterior angles are congruent



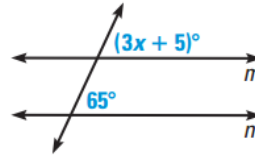
(or) consecutive interior angles are supplementary,



If $\angle 3$ and $\angle 5$ are supplementary, then $j \parallel k$.

then the lines are parallel.

Find the value of x that makes $m \parallel n$.

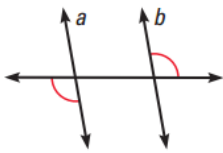


$$65 = 3x + 5$$

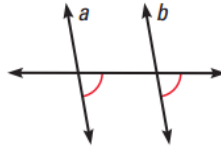
$$60 = 3x$$

$$20 = x$$

Can you prove that lines a and b are parallel? Explain why or why not.

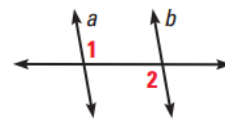


Yes - alternate exterior angles



yes - corresponding angles

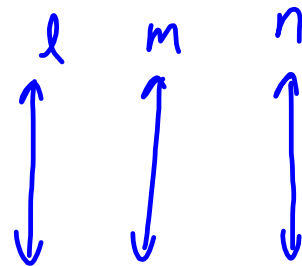
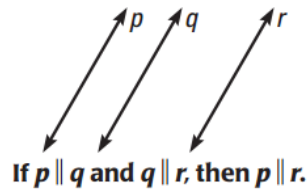
$$m\angle 1 + m\angle 2 = 180^\circ$$



no - same side (consecutive side) are supplementary

Transitive Property of Parallel Lines -

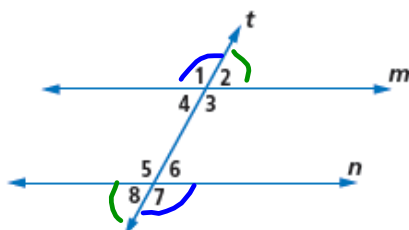
If two lines are parallel to the same line, then they are parallel to each other.



\therefore if $l \parallel m$ and $m \parallel n$ then $l \parallel n$

HW: Pg 157 #'s 1, 3-15, 19-21, 29, 30

1)



$$\angle 1 \cong \angle 7$$

$$\angle 2 \cong \angle 8$$