Wednesday, September 12, 2012

- TISK Problems

1) Find the slope and *y*-intercept of the line with the equation: $3x + 5y = 27$

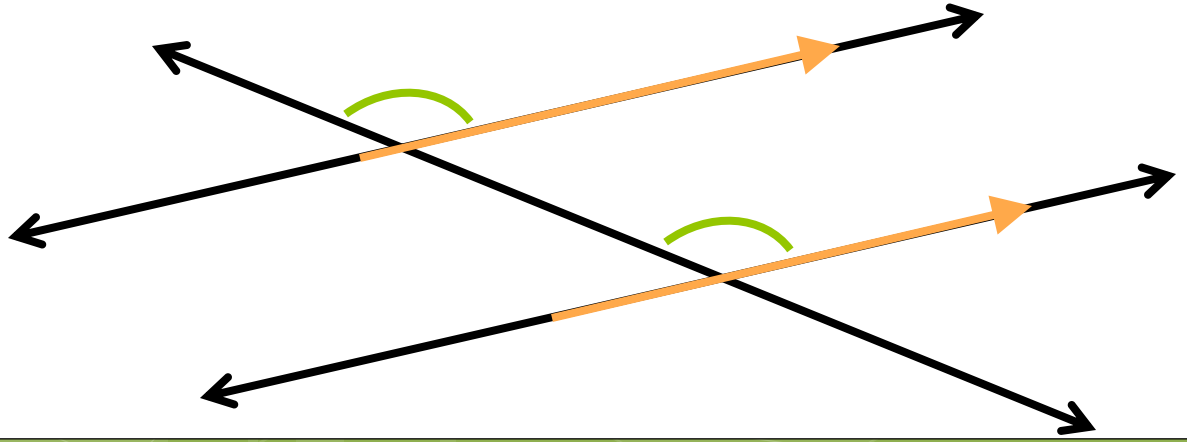
2) Simplify: $\dfrac{5x^2+11x+2}{5x+1}$

We will have 3 Mental Math questions.

- Homework: p. 152 #35-37

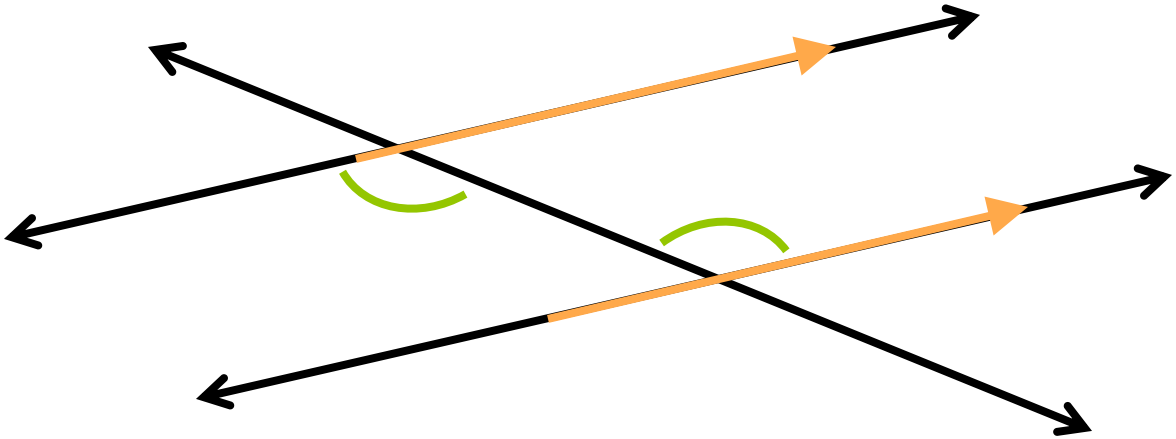
§3.4 Proving Lines are Parallel

- Corresponding Angles Converse (Postulate)
  - If two lines are cut by a transversal so that corresponding angles are congruent, then the lines are parallel.
  - If corresponding ∡s are $\cong \Longrightarrow$ lines are $\parallel$.



Theorems

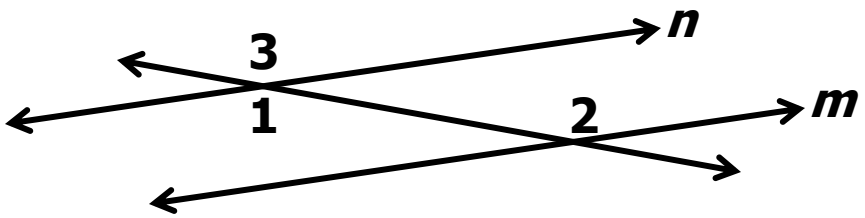
- Alternate Interior Angles Converse
  - If two lines are cut by a transversal so that alternate interior angles are congruent, then the lines are parallel.
  - If AI ∡s are $\cong \Longrightarrow$ lines are ||



Proof of Al Angles Converse.

Given: $\measuredangle 1 \cong \measuredangle 2$

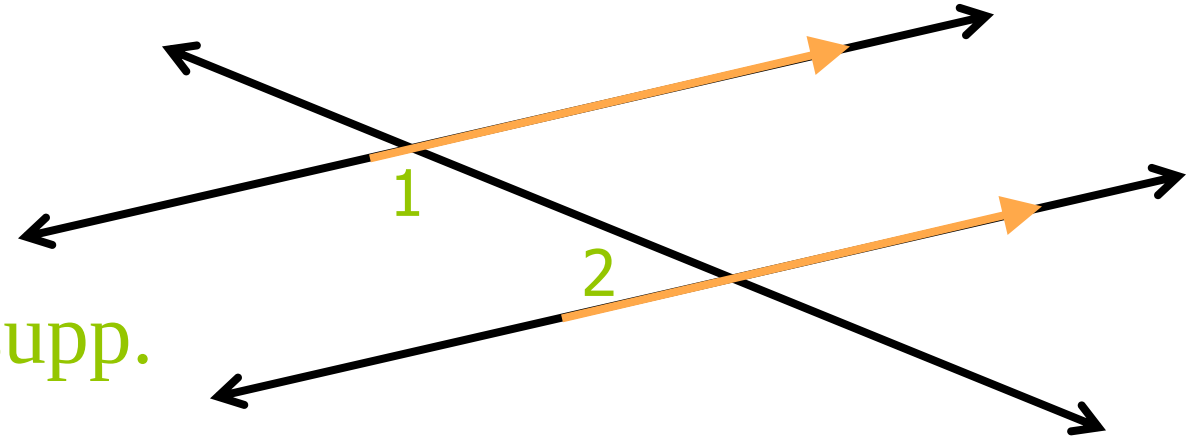
Prove: $m||n$



Statements	Reasons
1) $\measuredangle 1 \cong \measuredangle 2$	1) Given
2) $\measuredangle 1$&$\measuredangle 3$ are vert. $\measuredangle$s	2) Assumed
3) $\measuredangle 1 \cong \measuredangle 3$	3) If 2$\measuredangle$s are vert. $\measuredangle$s $\Rightarrow$ they′re $\cong$
4) $\measuredangle 2 \cong \measuredangle 3$	4) If $\measuredangle A \cong \measuredangle$B and $\measuredangle B \cong \measuredangle$C $\Rightarrow \measuredangle A \cong \measuredangle$C
5) $m||n$	5) If Corresponding $\measuredangle$s are $\cong \Rightarrow$ lines are $||$

Theorems

- Consecutive Interior Angles Converse
  - If two lines are cut by a transversal so that consecutive interior angles are supplementary, then the lines are parallel.
  - If CI ∠s are supp. ⇒ lines are ∥.

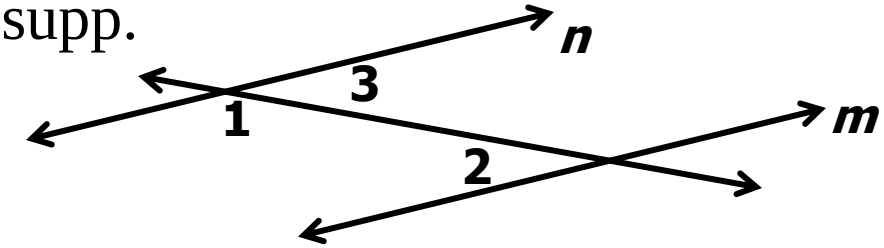


∠1&∠2 are supp.

Proof of CI Angles Converse

Given: ∡1&∡2 are supp.

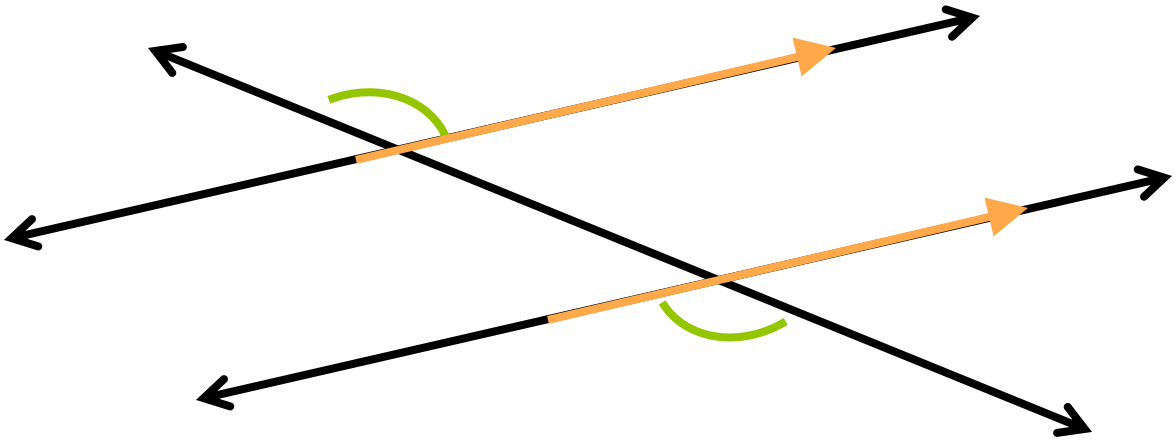
Prove: $m||n$



Statements	Reasons
1) ∡1&∡2 are supp.	1) Given
2) ∡1&∡3 are a linear pair	2) Assumed
3) ∡1&∡3 are supp.	3) If 2∡s are a l.p.⇒ they're supp.
4) ∡2 ≅ ∡3	4) If 2∡s are supp. to the same ∡ ⇒ they′re ≅
5) $m||n$	5) If AI∡s are ≅ ⇒lines are ‖

Theorems

- Alternate Exterior Angles Converse
  - If two lines are cut by a transversal so that alternate exterior angles are congruent, then the lines are parallel.
  - If AE ∠s are ≅ ⇒ lines are ||.

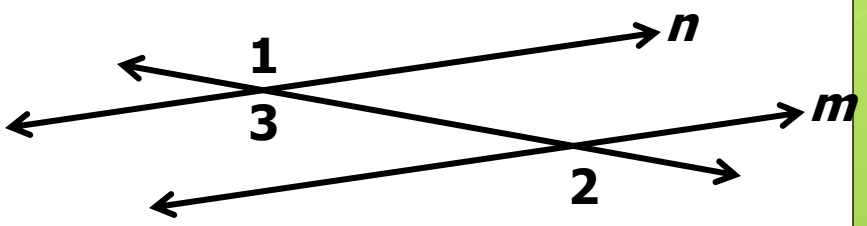


Proof of AE Converse

- You will be asked to prove this theorem on a test or a quiz.

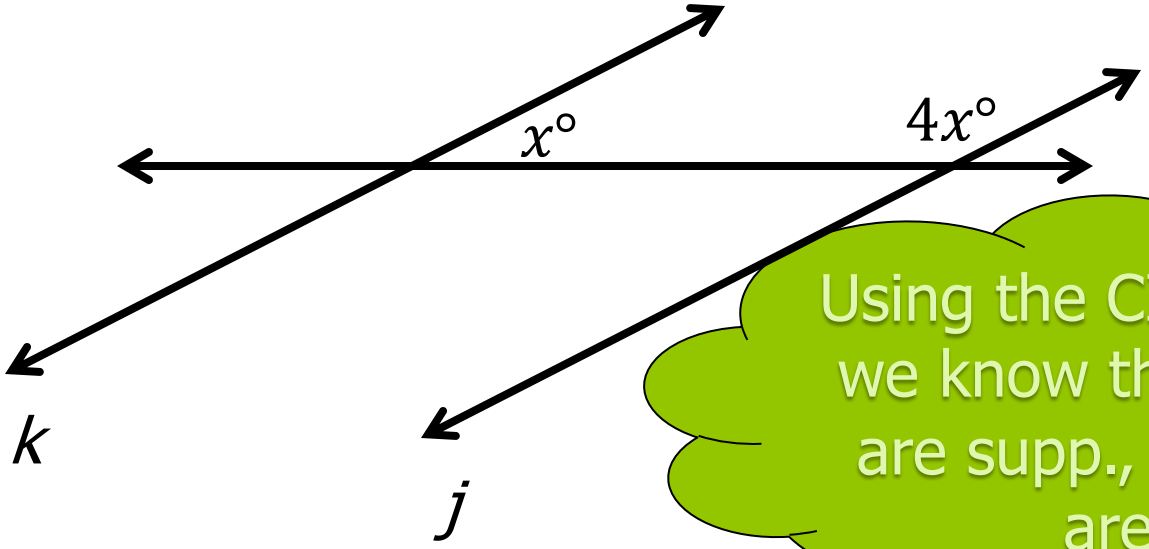
Given: $\measuredangle 1 \cong \measuredangle 2$

Prove: $m \parallel n$



Example.

Find the value of x that makes $j \parallel k$.



Using the CI Converse, we know that if CI ∠s are supp., then lines are ∥.

$$x° + 4x° = 180°$$

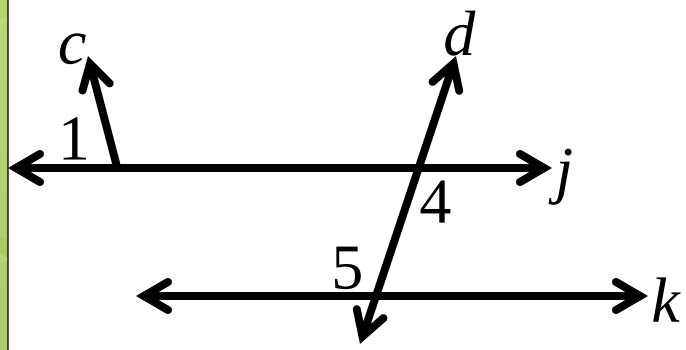
$$5x° = 180°$$

$$x = 36$$

Proof Practice

Try this proof using the white boards and working with your seat partner.

- Given: ∡1 and ∡4 are supp. & ∡1 and ∡5 are supp.
- Prove: $j \parallel k$



Statement	Reason

Homework

- p. 152 #35-37
  - For all proofs, start with a flow proof then write a 2-column proof.