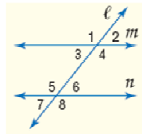**Objectives**: *You will be able to recognize angle conditions that occur with parallel lines and prove theorems about parallel lines.*

Corresponding Angles Converse: If two lines are cut by a transversal, so the **corresponding** angles are congruent, then the lines are **parallel.**

Dec 1-12:53 PM

Alternate Interior Angles Converse: If two lines are cut by a transversal, so the **alternate interior angles** are congruent, then the two lines are **parallel.**

Alternate Exterior Angles Converse: If two lines are cut by a transversal, so the **alternate exterior angles** are congruent, then the two lines are **parallel.**

Dec 1-10:12 PM

Consective Interior Angles Converse: If two lines are cut by a transversal, so the **consecutive interior angles** are supplementary, then the two lines are **parallel.**
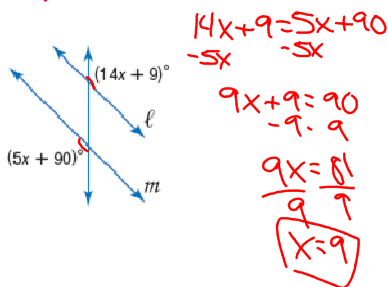

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Transitive Property of Parallel Lines: If two lines are parallel to the same line, **then they are parallel to each other.**
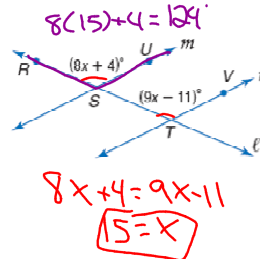

Dec 1-10:26 PM

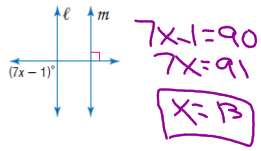**Example 1**: Find the value of x so that $\ell \parallel m$.

$(14x + 9)°$

$(5x + 90)°$

$14x+9=5x+90$
$-5x \quad\quad -5x$

$9x+9=90$
$\quad -9 \cdot 9$

$\dfrac{9x}{9}=\dfrac{81}{9}$

$\boxed{X=9}$

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Example 2: Find the value of x and the $m\angle RSU$ so that $n \parallel m$.

$8(15)+4 = 124°$

$(8x + 4)°$

$(9x - 11)°$

$8X+4=9X-11$
$\boxed{15=X}$

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Example 3: Find the value of x so that $\ell \parallel m$.

$7x-1=90$
$7x=91$
$\boxed{x=13}$

$(7x-1)°$

Example 4: Find the value of x that would make $\ell \parallel m$.

$7x+3$

$(9x-5)°$ $(7x+3)°$

$9x-5+7x+3=180$
$16x-2=180$
$\dfrac{16x}{16}=\dfrac{182}{16}$
$x=11.375$
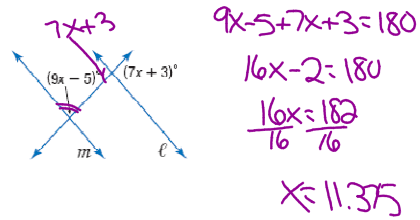
Dec 1-1:03 PM   Dec 1-1:04 PM
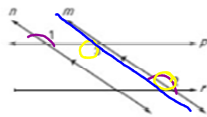
In Exercises 5-9 , complete the two-column proof.
GIVEN: $n \parallel m, \angle 1 \cong \angle 2$
PROVE: $p \parallel r$

Statements		Reasons
$n \parallel m$	5	given
$\angle 1 \cong \angle 3$	6	AH Inf. theorem
$\angle 1 \cong \angle 2$	7	given
$\angle 2 \cong \angle 3$	8	Substitution/transitive
$p \parallel r$	9	AH Int. ∠ converse

Dec 13-2:19 PM