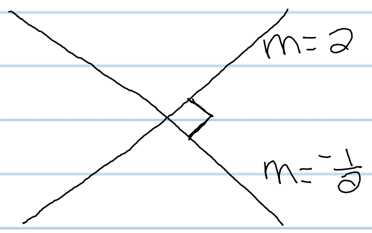
Natalie

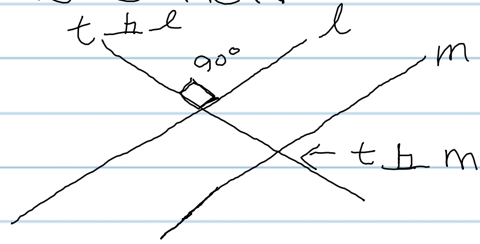
A4 Geometry 10.5.10

Theorem 3-4

In a plane, if a line is perpendicular to one of two parallel lines, then it is perpendicular to the other.



$\ell \parallel m$



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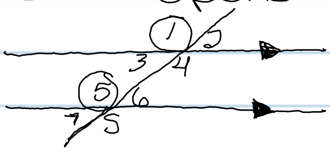
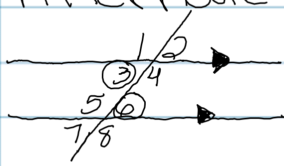
AH Geometry

Corresponding Angles Postulate



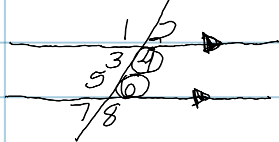
if two parallel lines are cut by a transversal, then each pair of corresponding angles are congruent.

Alternate interior angles theorem



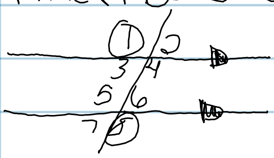
if two parallel lines a cut by a transversal, then each pair of alternate interior angles are congruent.

Consecutive interior angles theorem

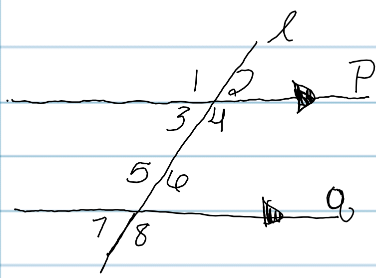


if two parallel lines are cut by a transversal, then each pair of consecutive interior angles are supplementry.

Alternate exterior angles theorem



if two parallel lines are cut by a transversal, then each pair of alt. ex. angles are congruent.



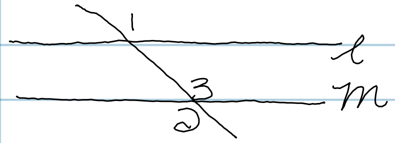
Given: $p \parallel q$
l is transversal of p & q

Prove: $\angle 1 \cong \angle 8$
$\angle 2 \cong \angle 7$

$p \parallel q$ l is $\neq$ p & q	Given
$\angle 1 \cong \angle 5$	Corres. angles, post.
$\angle 5 \cong \angle 8$	Vertical $\angle$ theorem
$\angle 1 \cong \angle 8$	Substitution

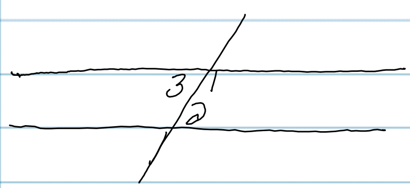
Natalie
11-22-10

AH Geometry



Given: $\angle 1 \cong \angle 2$
Prove: $l \parallel m$

S	R
$\angle 1 \cong \angle 2$	Given
$\angle 2 \cong \angle 3$	vertical angles are $\cong$
$\angle 1 \cong \angle 3$	Congruence of $\angle$'s is transitive
$l \parallel m$	If + corr. $\angle$'s are $\cong$, then the lines are $\parallel$

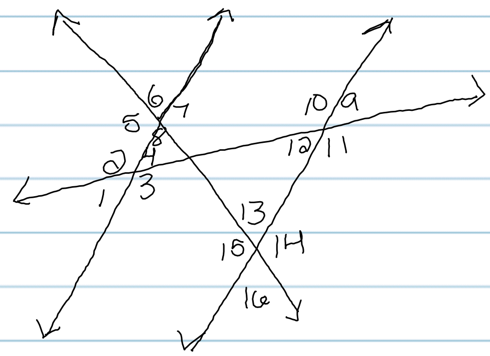


Given! $\angle 1$ + $\angle 2$ are supp.
Prove: $l = m$

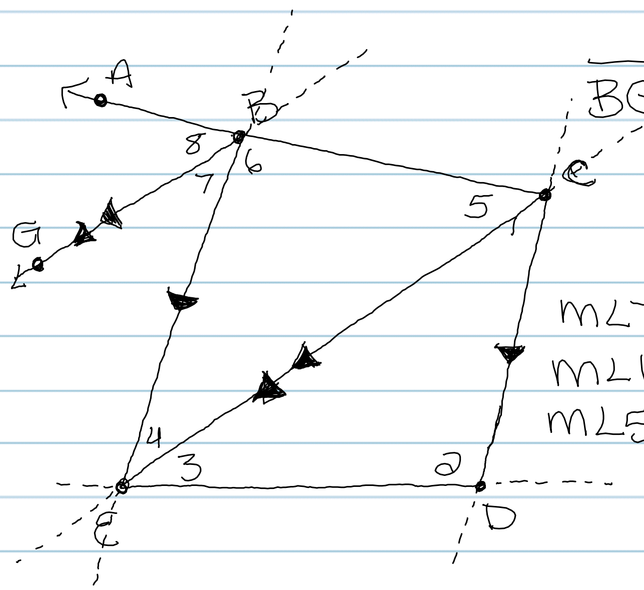
S	R
$\angle 1$ + $\angle 2$ are supp.	Given
$\angle 1 + \angle 3$ form lin. pair	def. of linear pair
$\angle 1 + \angle 3$ are supp.	2 $\angle$ that form a lin. pair are supp.
$m\angle 1 + m\angle 2 = 180$ $m\angle 1 + m\angle 3 = 180$	Def. of supp. $\angle$'s
$m\angle 1 + m\angle 2 = m\angle 1 + m\angle 3$	Substitution
$m\angle 2 = m\angle 3$	Subtraction
$\angle 2 \cong \angle 3$	$\angle$'s that are supp. to the same $\angle$ are $\cong$
$l \parallel m$	~~Corresp~~ if so that alt. int. $\angle$'s are $\cong$ then the lines are $\parallel$

Natalie
11·29·10

A4 Geometry



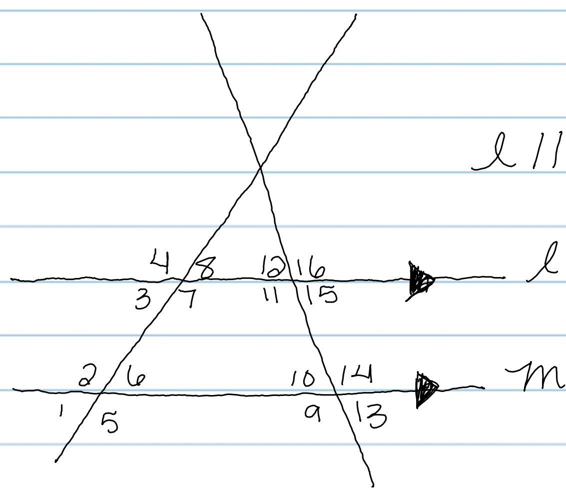
∠2 and ∠3: vertical ∠'s
∠1 & ∠9: alt. exterior
∠2 & ∠10: corresponding
∠8 & ∠15: consecutive int.
∠3 & ∠10: alt. interior
∠15 & ∠3: undefined



$\overline{BG} \parallel \overline{CE}$, $\overline{BE} \parallel \overline{CD}$, $\overline{BG}$ bisects ∠EBA

$m\angle 8 = 42°$ $m\angle 3 = 18°$

$m\angle 7$	42°	$m\angle 4$	42°
$m\angle 1$	42°	$m\angle 6$	96°
$m\angle 5$	42°	$m\angle 2$	120°



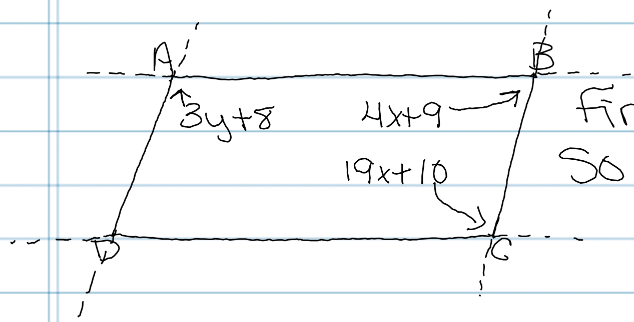
$l \parallel m$

Find x if $m\angle 4 = 126°$ and $m\angle 5 = 2x-2$

$2x-2=126$
$2x=128$
$x=64$

If $m\angle 12 = 3x-2$ & $m\angle 10 = 2x+24$ find $m\angle 14$

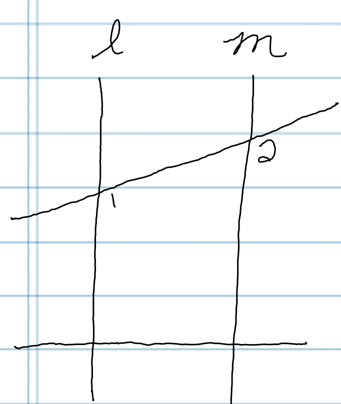
$3x-2=2x+24$ $m\angle 14 = 104°$
$x=26$



Find the value of x and y So that:

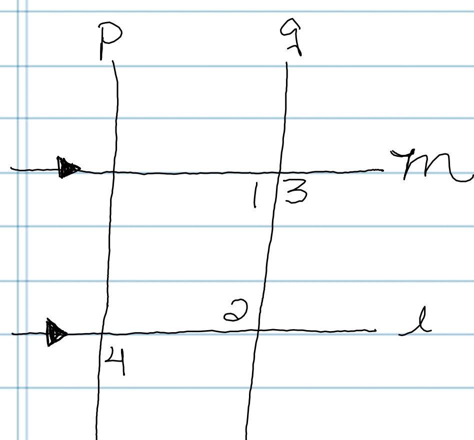
$\overline{AB} \parallel \overline{CD}$, $\overline{AD} \parallel \overline{BC}$

$x=7$ $y=45$



Explain what must be true about angles 1 + 2 if you wish to prove $l \parallel m$.

If ⇹ and the corresp. ∡'s are ≅, the the lines are //



Given: ∠1 supplementary ∠4 + $l \parallel m$
prove: $p \parallel q$

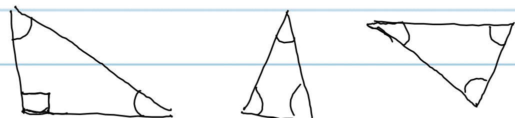
S	R
∠1 supple. ∠4 + $l \parallel m$	given
∠1 supple. ∠2	consec. int. ∡s are supp
∠2 ≅ ∠4	∡ supp. to the same ∡ are ≅
∴ $p \parallel q$	if ⇹ so alt. int. ∡s are ≅ then the lines //

Natalie
12.3.10

AH Geometry

Classifying Triangles
Measuring Angles in Triangles

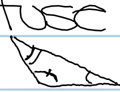
Angle sum theorem - the sum of the measures of the angles ~~measures~~ of a triangle = 180°



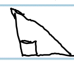
Classified by ∡

* acute triangles - all angles are acute angles

* obtuse triangles - one of the angles is obtuse

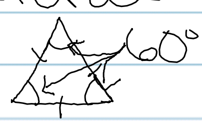


* right triangles - one angle is 90° or ⊥

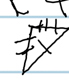


Classified by Sides

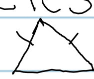
* equilateral triangles - all angles are congruent, all sides are congruent

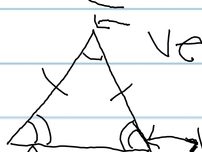


* scalene triangles - none of sides are congruent



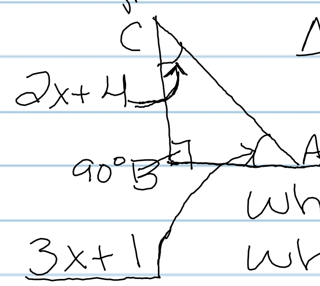
* isosceles triangles - at least 2 sides are ≅





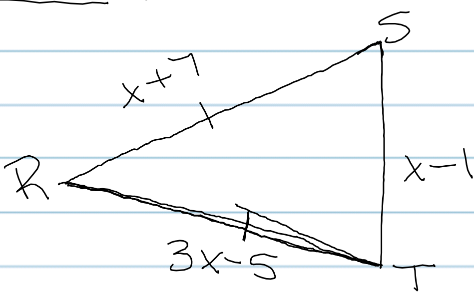
isoseles

Right Δ



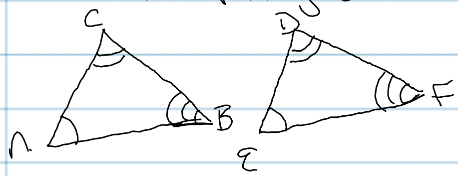
ΔABC is a right Δ if
∠BAC 3x+1 &
∠ACB = 2x+4
What is x
What is m∠BAC, m∠ACB

$2x+4+3x+1=90$
$5x+5=90$
$5x=85$
$x=17$



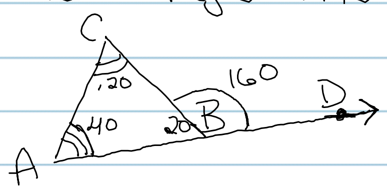
$x+7=3x-5$
$7=2x-5$
$12=2x$
$6=x$

Thrid Angle Theorem - if 2 angles of one triangle are congruent to 2 angles of a second Δ then the 3^{rd} angles of the Δ's are ≅.



if $\angle ABC \cong \angle EFD$ &
$\angle ACB \cong \angle EDF$ then
$\angle CAB \cong \angle DEF$

Exterior Angle Theorem - the measure of an exterior ∡ of a Δ is = the sum of the measures of the 2 remote interior ∡'s



$m\angle CBD = m\angle BCA + m\angle BAC$
$160° = 40° + 120°$