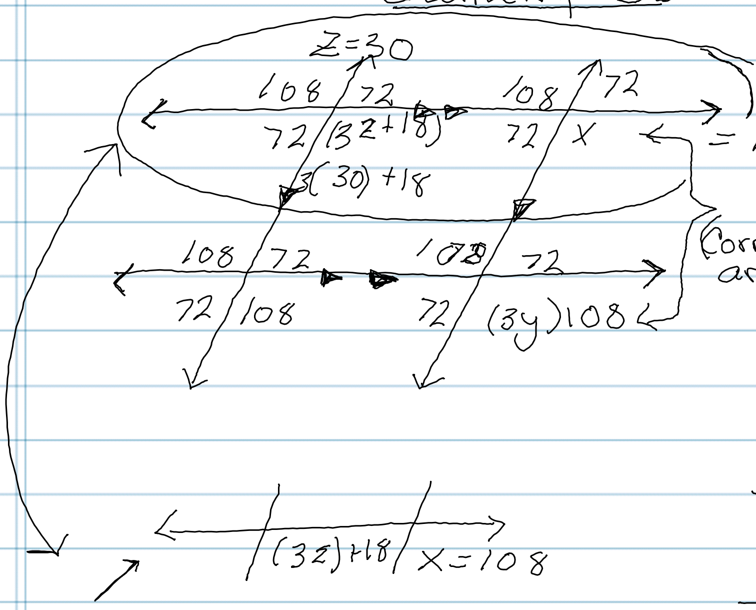
Ashley Keenan 11/15/10

Geometry B3



(Isolate the transversal you are looking at.)

= 108

(Corresponding angles)

$3y + 72 = 180$

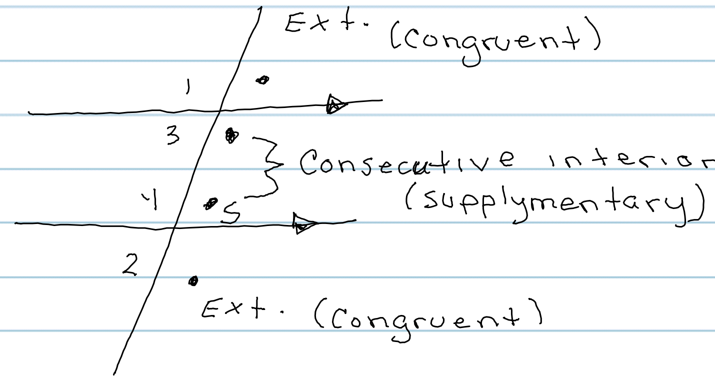
$3y = 108$

$\boxed{y = 36}$

$3z + 18 = 108$

$3z = 90$

$z = 30$



∠1 and ∠2 are exterior and congruent

∠3 and ∠4 are consecutive interior (supp.)

∠3 and ∠5 are alternate interior (supp)

∠1 and ∠2 are also corresponding

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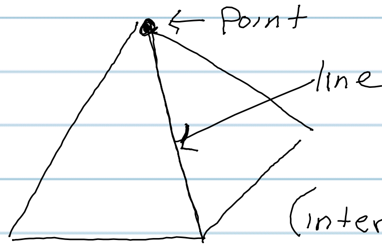
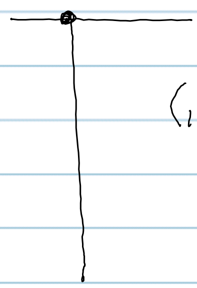
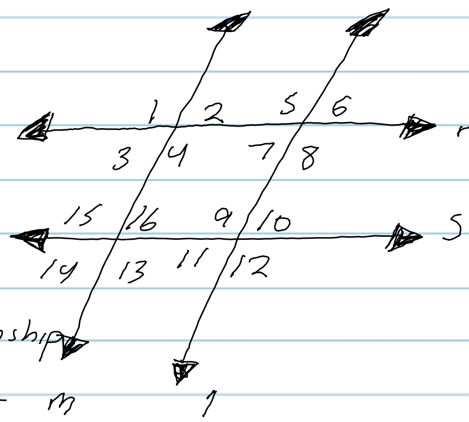
Geometry B3



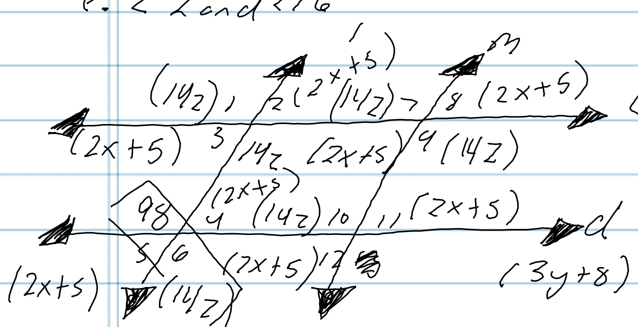
2plans meet they form a line
3 plains meet they form a point
(intersecting)



(intersecting)



a. <u>true</u> b/c it intersects both lines
b. <4 and <9 consec interior <u>false</u> no direct relationship
c. <14 and <10 are corresponding angles <u>false</u> b/c alternate exterior angles.
d. <7 and <10 true
e. <2 and <16



find x = 38.5
y = 30
z = 7

<u>Ways to go about this problem:</u>
3y + 8 = 98
alt ex → congru
14z = 98
alt int → Cong.
14z + (2x+5) = 180
Consecutive int.

14z = 98 z = 7
14 z (98) + 2x + 5 = 18
2x = 77 38.5
3y + 8 = 98
-8 -8

$\frac{3y}{3} = \frac{90}{3}$ 30

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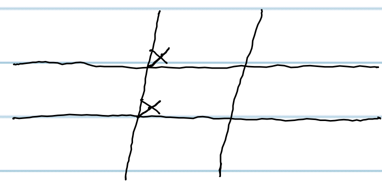
Geometry B3 (cont)

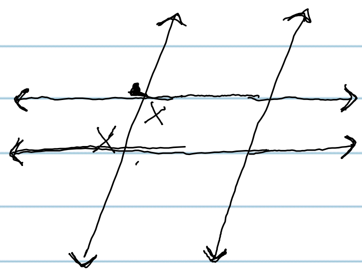
Corresponding Angle Postulate



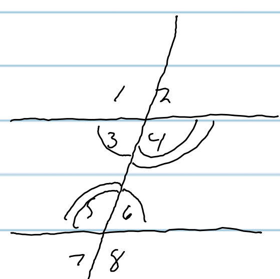
if two parallel lines are cut by a transversal, then each pair of corresponding angles are congruent. (equal or the same)

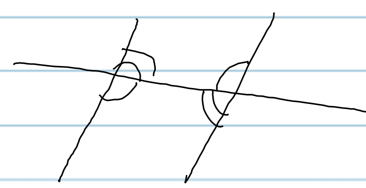
∠2 and ∠6 corresponding angles
∠4 and ∠8
∠1 and ∠5
∠3 and ∠7

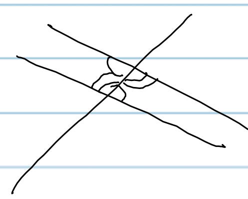
Alternate interior angles theorm:

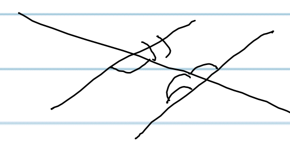


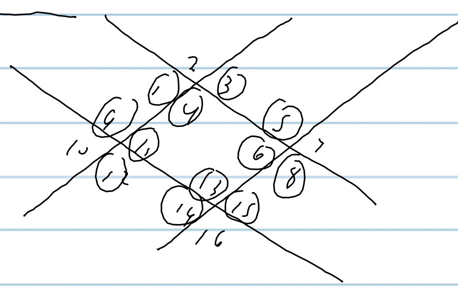
if two parallel lines are cut by a transversal then each pair of alternate interior angles is congruent.









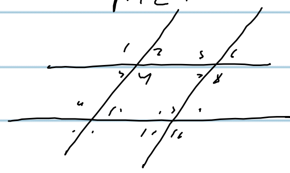


Alternate exterior angle theorm:

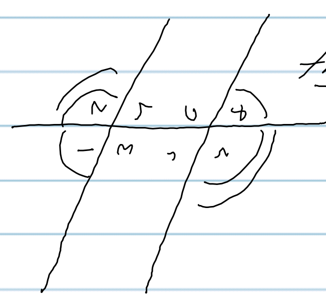
if two parallel lines are cut by a transversal then each pair of alternate exterior angles is congruent.

m∠1 = 95°
m∠8 = 95°

m∠1 = 100



m∠14 = 80



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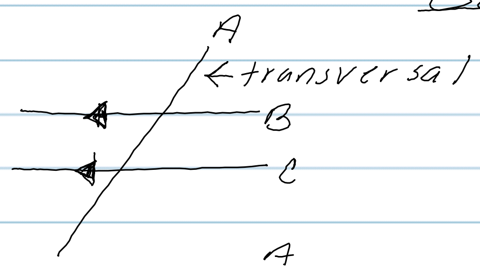
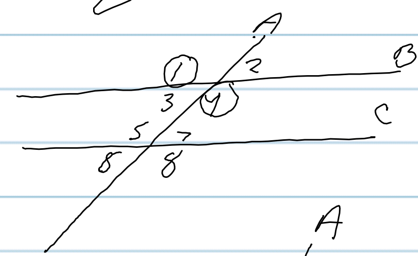
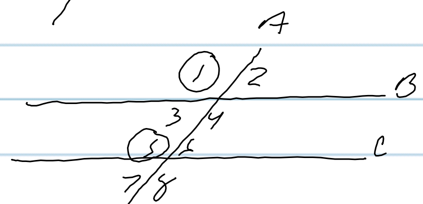
Geometry B3 (study guide)

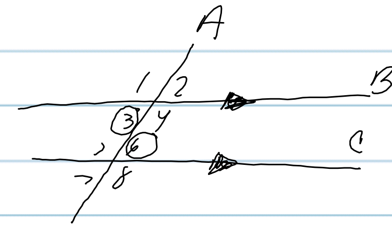




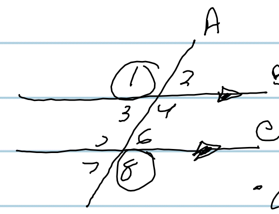
Vertical angles
Congruent/same measure



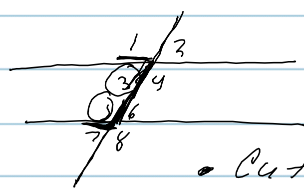
Corresponding angles
- Cut by a transversal
- Congruent



Alternate interior angles
- Cut by transversal
- Congruent

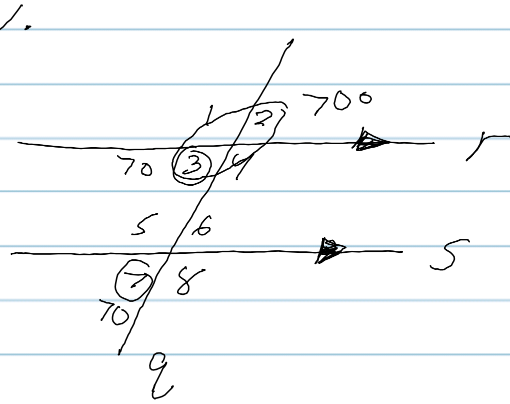


alternate exterior angles
- Cut by a transversal
- Congruent



Consecutive interior angles
- Cut by transversal
- Supplementary

-Converse of Corresponding angle Postulate:
If two lines in a plane are cut by a transversal so that corresponding angles are congruent, then the lines are parallel.



$m\angle 2 = 70$

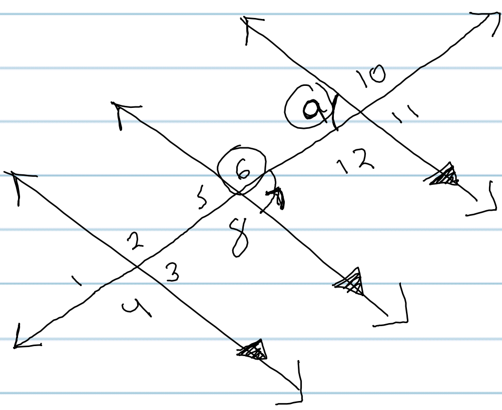
find $m\angle 8 = 110°$

$m\angle 5 = 110°$

$m\angle 6 = 70°$

Ashley Keener 11/10/16

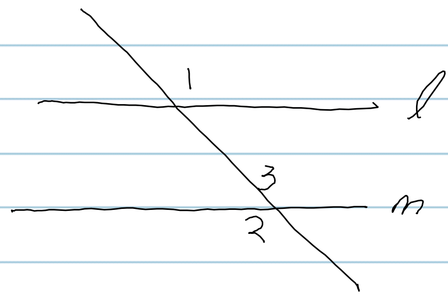
<u>Geometry B3 (con.)</u>



$m\angle 7 = 100$

find $m\angle 9 = 100°$ (alt interior)

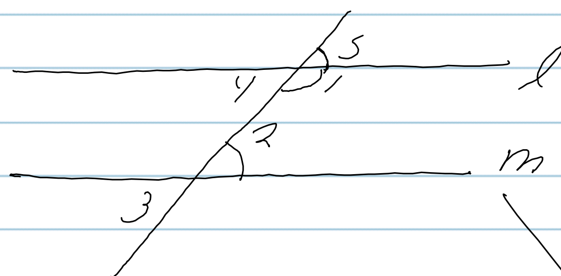
$m\angle 6 = 80°$ (consecutive interior)



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
$\angle 1 \cong \angle 3$	Congruence of ∠'s is transitive
$l \parallel m$	(if 2 parallel lines are cut by a transversal and corresponding angles are congruent then lines are ∥)



Given: ∡1 and ∡2 are supplement.

Prove: $l \parallel m$

S	R
$\angle 1 + \angle 2$ supp.	Given
$\angle 1$ & $\angle 4$ are linear pair	def of ∠P
$\angle 1$ + $\angle 4$ are suppl.	∠. p. are supp.
$\angle 2$ and $\angle 5 \cong$	2∠'s supplementary to same ∠'s are ≅
$l \parallel m$	if alternate interior angles are congruent then the lines are parallel.

S	R
∡1 and ∡2 sup.	Given
$\measuredangle 2 \cong \measuredangle 3$	verticle ∡ are ≅
$\angle 1 + 5$ are sup.	Def of linear pair
$\angle 5 \cong \angle 2$	
$\angle 1$-$\angle 2$ supp.	Substitution

Ashley Keenan 11/23/10

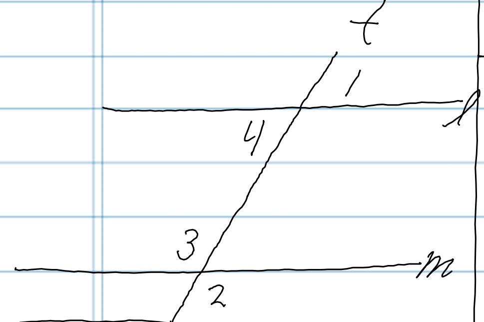
Geometry B3

(Workspace)

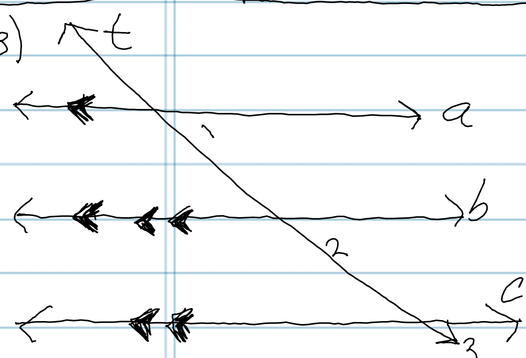
2) $\angle 1 + \angle 4 \cong$

$\angle 2 + \angle 3 \cong$

$\angle 4 + \angle 3$ supp

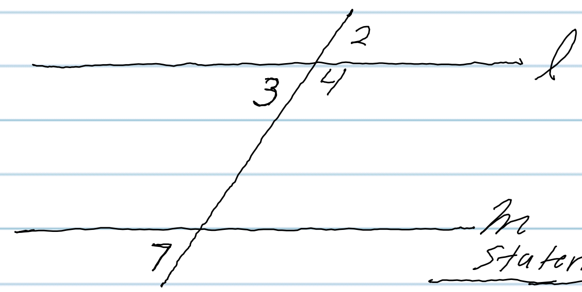


3)



(Answers)

1)



given- $\angle 2 \cong \angle 7$

Prove: $l \parallel m$

(transitive:
$x = y$
$y = z$
$x = z$)

Statement	Reasons
1. $\angle 2 \cong \angle 7$	Given
2. $\angle 2 \cong \angle 3$	Vertical angles are $\cong$
3. $\angle 3 \cong \angle 7$	Transitive / substitution
4. $l \parallel m$	if ⇹ and corr ∡s are $\cong$ then the lines are $\parallel$

⇹ means 2 lines cut by a transversal

2)

Given $\angle 1$ supp $\angle 2$

Prove $l \parallel m$

S	R
$\boxed{\angle 1 \text{ supp } \angle 2}$	Given
$\angle 1 \cong \angle 4$	Vertical angles $\cong$
$\angle 2 \cong \angle 3$	Vertical angles $\cong$
$\angle 4$ supp $\angle 3$	Substitution
$l \parallel m$	⇹ and cons. int. ∡ are supp. then the lines are $\parallel$

3)

Given $a \parallel b$ $b \parallel c$

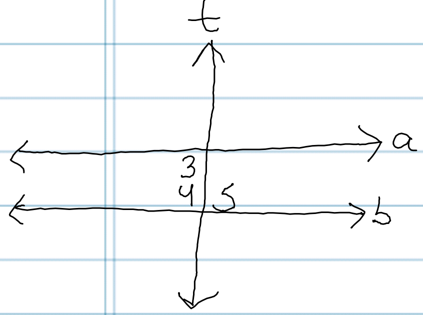
Prove $a \parallel c$

(transitive)

S	R
$a \parallel b$, $b \parallel c$	Given
$\angle 1 \cong \angle 2$	Corresponding ∡s $\cong$
$\angle 2 \cong \angle 3$	Corresponding ∡ $\cong$
$\angle 1 \cong \angle 3$	transitive prop of $\cong$
$a \parallel c$	if ⇹ and corresp. ∡s are cong. then the lines are $\parallel$

Ashley Keenan 11/30/'10

Geometry B3 (Conn.)



given $\angle 3$ & $\angle 4$ supp

$a \parallel b$

$\angle 3 \cong \angle 5$

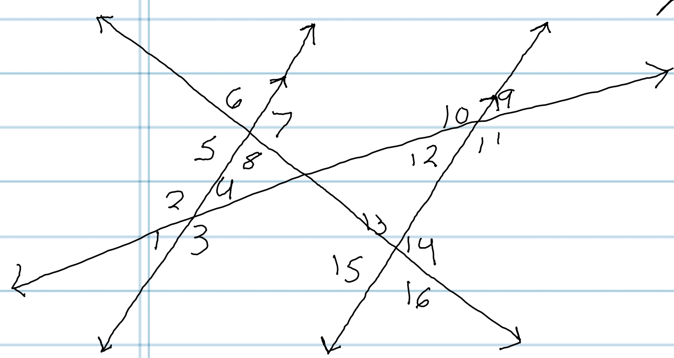
$\angle 4$ & $\angle 5$ = Supp

S	R
$\angle 3$ & $\angle 4$ supp	given
$\angle 4$ & $\angle 5$ supp form linear pair	Def of Linear Pair
$\angle 4$ & $\angle 5$ supp	Linear pairs are supp.
$m\angle 3 + m\angle 4 = 180$	
$m\angle 4 + m\angle 5 = 180$	Definition of Supp ∡'s
$m\angle 3 + m\angle 4 = m\angle 4 + m\angle 5$	Substitution
$m\angle 3 = m\angle 5$	Subtraction
$\angle 3 \cong \angle 5$	Def. of $\cong$ angles
$a \parallel b$	if ≠ and alternate interior angles are congruent then the lines are $\parallel$.

Ashley Keenan 11/30/12

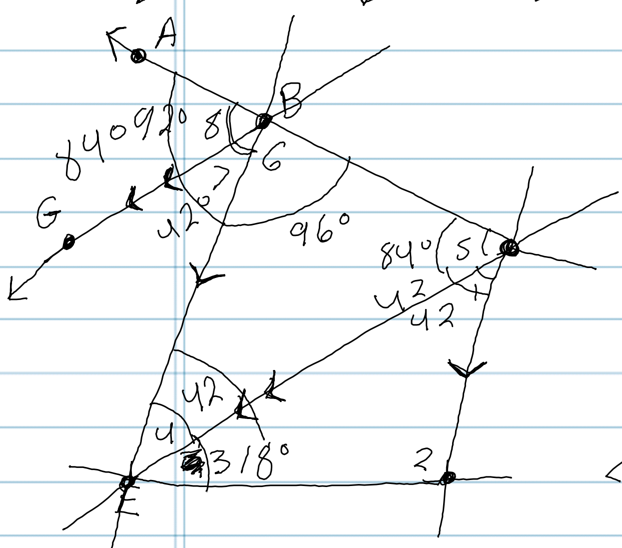
Geometry B3

Ch 3. Study Guide



A. Angles relationships.

- $\angle 2$ & $\angle 3$ = Vertical (cong.)
- $\angle 1$ & $\angle 9$ = alt. ext. (cong.)
- $\angle 2$ & $\angle 10$ = Corresponding (cong.)
- $\angle 8$ & $\angle 15$ = Cons. int. (supp.)
- $\angle 3$ & $\angle 10$ = alt int. (cong.)
- $\angle 15$ & $\angle 3$ = No relationship



B. $\overleftrightarrow{BG} \parallel \overleftrightarrow{CE}$, $\overleftrightarrow{BE} \parallel \overleftrightarrow{CD}$, $\overleftrightarrow{BG}$ bisects $\angle EBA$

$m\angle 8 = 42°$ $m\angle 3 = 18°$

find:

$\angle 7$ - 42°

$\angle 1$ - 42°

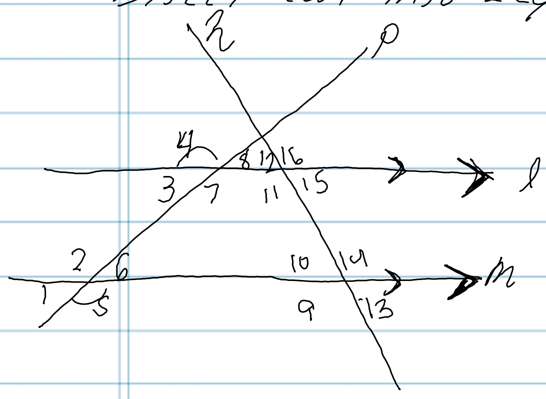
$\angle 5$ - 42°

$\angle 4$ - 42°

$\angle 6$ - 96°

$\angle 2$ - 120°

bisect - cut into 2 equal parts.



C) find x if $m\angle 4 = 126°$ and $m\angle 5 = 2x - 2$

a. $2x$

$+2 \quad +2$

$2x = 128$

$\frac{2x}{2} = \frac{128}{2}$

$x = 64°$

$\angle 4$ and $\angle 5$ are alt ex. which means they are congruent so $\angle 5 = \angle 4$ so $126 = 2x - 2$. solve.

Ashley Keenan 11/30/11

Geometry B3 (Conn.)

C)

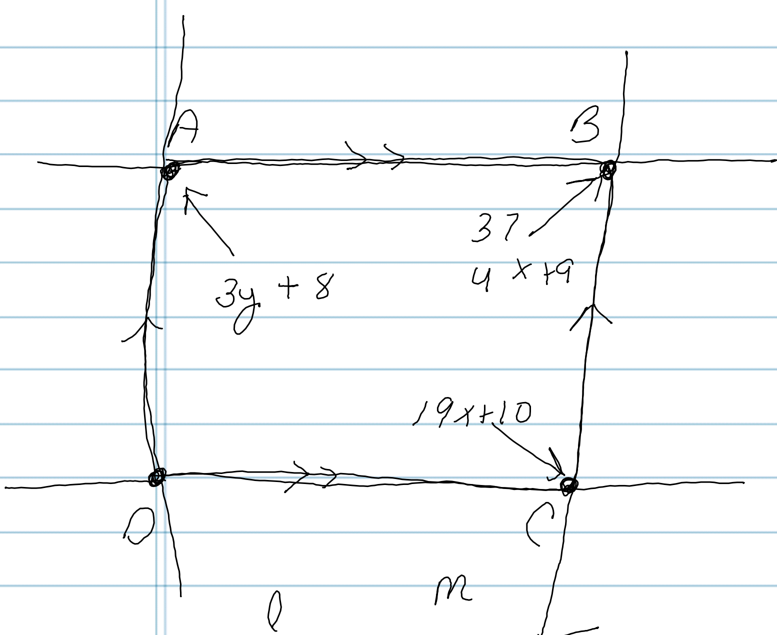
6. if $m\angle 12 = 3x-2$ and $m\angle 10 = 2x+24$ find $m\angle 14$

$3x-2 = 2x+24$ (corresponding angles) [cong.]

$x = 26$ $2(26)+24 = 76$ $m\angle 10 = 76°$

$m\angle 14 = m\angle 10 (-180)$

$180 - 76 = 104°$



$\overline{AB} \parallel \overline{CD}$

$\overline{AD} \parallel \overline{BC}$

for x and y

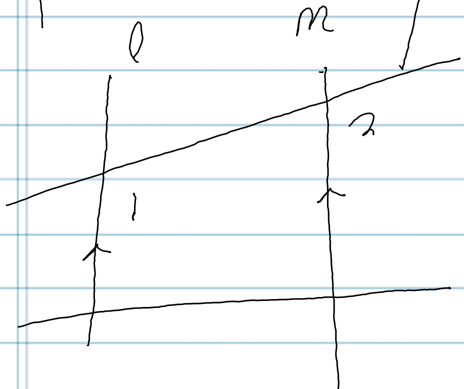
$4x+9 + 19 + 10 = 180$

$23x + 19 = 18$

~~x=~~ $x = 7$

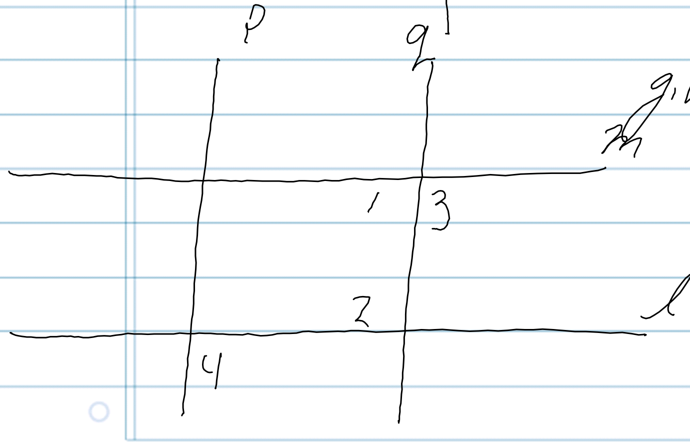
$3y + 8 + 37 =$

$y = 45$



if ≠ so that corresponding ∡'s are Congruent (≅) then the lines are parallel. (∥)

S	R
∠1 sup ∠4 l∥m	given
∠1 sup ∠2	Consec. inter. (-supp)
∠2 ≅ ∠4	Cong. ∡'s supp. to same ∡ are ≅
l∥m	if ≠ so that alt int ∡'s are Cong the lines are ll.



given ∠1 and ∠4 sup.

l∥m

prove p∥q