Name: _____

Write your questions here!

1.6 – Writing Proofs with Angles & Segments

Notes

Many rules from algebra are used in geometry.

Properties of Equality (true for all real numbers a, b, and c)	
Reflexive Property	$a = a$.
Symmetric Property	If $a = b$, then $b = a$.
Transitive Property	If $a = b$ and $b = c$, then $a = c$.
Addition Property	If $a = b$, then $a + c = b + c$.
Subtraction Property	If $a = b$, then $a - c = b - c$.
Multiplication Property	If $a = b$, then $a \cdot c = b \cdot c$.
Division Property	If $a = b$ and $c \neq 0$, then $\frac{a}{c} = \frac{b}{c}$.
Substitution Property	If $a = b$, then a may be replaced by b in any equation or expression.
Distributive Property	$a(b + c) = ab + ac$.

Important Properties for Proofs		
Addition Property	Reflexive Property	Substitution Property
Subtraction Property	Symmetric Property	Combining Like Terms
Multiplication Property	Transitive Property	Simplification
Division Property	Distributive Property	All right angles ≅
Angle Addition Postulate	Vertical Angles are ≅	Segment Addition Postulate
Definition of_____ (Bisector, Midpoint, Complementary, Supplementary, etc.)		

This list will grow as we continue through Geometry this year.

Write your questions here!

Directions: Complete the following proofs.

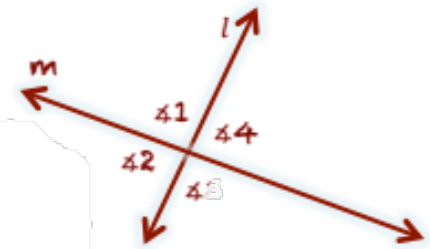
Example 1

Given: $-10(0 - (4x - 2)) = -9(4)$
Prove: $x = -1$

Statement	Reason
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

Remember, the first statement will always be the given while the last statement should always be what you need to prove.

Example 2

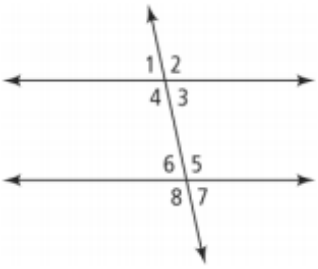


Given: $\angle 1 \cong \angle 4$
Prove: $\angle 2 \cong \angle 3$

Statement	Reason
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

Write your questions here!

Example 3



Given: $\angle 2 \cong \angle 5$
Prove: $\angle 4 \cong \angle 8$

Statement	Reason
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

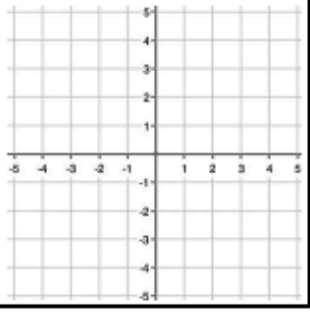
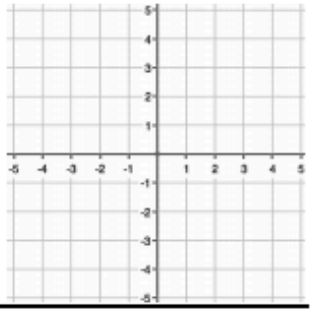
Example 4

Given: DF = EG
Prove: DE = FG

Statements	Reasons

Now, summarize your notes here!

SKILLZ REVIEW

Solve each equation for x!		Multiply!	Factor!
1. $12x - 3 = -3$	2. $5x + -2 = 3x - 4$	3. $2x(2x - 1)$	4. $3x^2 - 12x$
5. Graph the equation: $y = 4 - x$ 		6. Graph the equation: $x = -3$ 	

1.5 Problems

Directions: Complete the following proofs.

Given: $10x + 4 = 44$ Prove: $x = 4$

Proof #1

Statement	Reason
1.	1.
2.	2.
3.	3.

Given: $1 - x = 11$ Prove: $x = -10$

Proof #2

Statement	Reason
1.	1.
2.	2.
3.	3.

Given: $10x + 42 = 20 - x$ Prove: $x = -2$

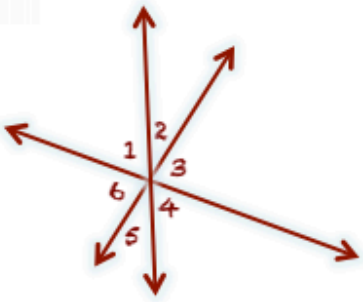
Proof #3

Statement	Reason
1.	1.
2.	2.
3.	3.
4.	4.

Given: $6x - (4x - 1) = 2$ Prove: $x = \frac{1}{2}$

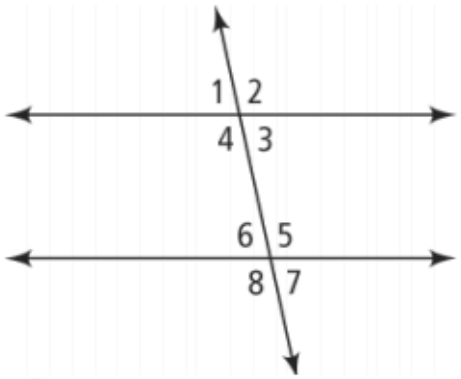
Proof #4

Statement	Reason
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.



Given: ∠1 ≅ ∠3
Prove: ∠4 ≅ ∠6

1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.



Given: ∠1 ≅ ∠6
Prove: ∠3 ≅ ∠7

Statement	Reason
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

Given: ∠1 and ∠2 are supplementary
∠2 and ∠3 are supplementary
Prove: ∠1 ≅ ∠3

1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.

Given: M is the midpoint of $\overline{AB}$.
B is the midpoint of $\overline{MD}$.
Prove: $MD = 2MB$

Statement	Reason
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.