Get out hw tracker and 6.1C to correct!

Sec 6.1C

~~Unit 6 Standards Quiz #1 Review~~ Name:_____Hr:____

Standard: Students will be able to prove algebraic calculations

1. Order the statements correctly. Then choose the reasons for each statement from the choices below.
   Given: $2x + 3 = 5x - 6$
   Prove: $x = 3$

Statements:	Reasons (Justification):
1) $2x+3=5x-6$	a) Given
2) $-3x+3=-6$	b) Subtraction
3) $-3x=-9$	c) Subtraction
4) $x=3$	d) Division
5)	e)

Statements:	Reasons:
• $3 = x$ • $2x + 3 = 5x - 6$ • $9 = 3x$ • $x = 3$ • $3 = 3x - 6$	• Subtraction Property of Equality • Given • Addition Property of Equality • Subtraction Property of Equality • Division Property of Equality • Substitution Property • Symmetric Property • Reflexive Property

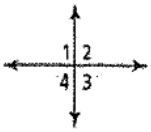
2. Write a complete proof.
   Given: $3x - 5 = 10$
   Prove: $x = 5$

Statements:	Reasons (Justification):
(1) $3x-5=10$	(1) Given
(2) $3x=15$	(2) Addition
(3) $x=5$	(3) Division

(Hint: Work out the problem first, use the steps as statements)

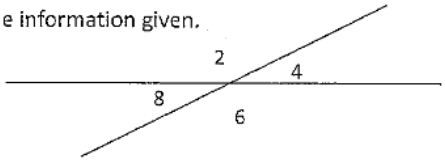
Standard: Students will be able to prove statements about angles.

3. Fill in the blanks on the following proof.
Given: $\angle 1 \cong \angle 2$
Prove: $\angle 4 \cong \angle 3$



Statements:	Reasons:
1) $\angle 1 \cong \angle 2$	a) Given
2) $\angle 4 \cong \angle 2$	b) Vertical angles are $\cong$
3) $\angle 1 \cong \angle 4$	c) Transitive Property of Congruence
4) $\angle 1 \cong \angle 3$	d) Vertical angle
5) $\angle 4 \cong \angle 3$	e) Transitive

4. Write a complete proof using the information given.
Given: $\angle 2 \cong 140°$
Prove: $\angle 8 \cong 40°$

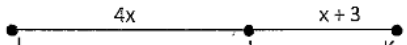


Statements:	Reasons:
(1) $\angle 2 \cong 140$	(1) Given
(2) $\angle 2 + \angle 8 = 180°$	(2) Definition of a linear pair
(3) $140° + \angle 8 = 180°$	(3) Substitution prop. =
(4) $\angle 8 = 40°$	(4) Subtraction prop. of =

Standard: Students will be able to prove statements about lines (segments)

5. Complete the proof by filling in the spaces below.

Given: JK = 48
Prove: x = 9



Statements	Reasons
1) JK = 48	a) Given
2) JL + LK = JK	b) Segment addition postulate
3) 4x + x + 3 = JK	c) Substitution Property
4) 5x + 3 = 48	d) ~~Distributive Property~~ Substitution
5) 5x = 45	e) Subtraction
6) x = 9	f) Division

6. Use the statements and reasons given at the bottom to write a complete proof of the following:

Given: C *is the midpoint of* $\overline{AD}$.
Prove: $x = 4$

Statements:	Reasons:
1) C is the midpoint of AD	1) Given
2) $\overline{AC} \cong \overline{CD}$	2) Definition of a midpoint
3) $m\overline{AC} = m\overline{CD}$	3) Congruent segments have equal length
4) 3x + 8 = 5x	4) Substitution
5) 8 = 2x	5) Subtraction
6) x = 4	6) Division

Statements:

- ~~2x = 12~~ 8
- ~~$mAC = mCD$~~
- ~~5x = 3x + 8~~
- ~~$\overline{AC} = \overline{CD}$~~
- $x = 4$
- ~~*C is the midpoint of* $\overline{AD}$~~

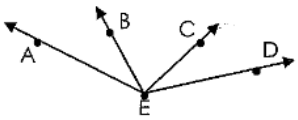
Reasons:

- ~~Congruent segments have equal length~~
- Subtraction Property of Equality
- ~~Given~~
- ~~Definition of midpoint~~
- Division Property of Equality
- ~~Substitution Property~~

6.2A Line Segment and Angle Proofs

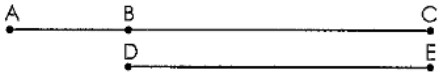
Name: _____ Hr:_____

1. Given: $\angle AEC \cong \angle DEB$
   Prove: $\angle AEB \cong \angle DEC$



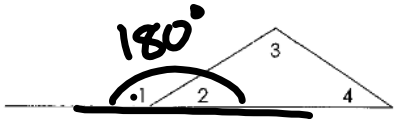
Statements	Reasons
1. $\angle AEC \cong \angle DEB$	1.
2. $m\angle AEC = m\angle DEB$	2.
3. $m\angle AEB + m\angle BEC = m\angle AEC$	3.
4. $m\angle DEC + m\angle BEC = m\angle DEB$	4.
5. $m\angle AEB + m\angle BEC = m\angle DEC + m\angle BEC$	5.
6. $m\angle AEB = m\angle DEC$	6.
7. $\angle AEB \cong \angle DEC$	7.

2. Given: $\overline{BC} \cong \overline{DE}$
   Prove: $AC = AB + DE$



Statements	Reasons
1. $\overline{BC} \cong \overline{DE}$	1.
2. $BC = DE$	2.
3. $AC = AB + BC$	3.
4. $AC = AB + DE$	4.

3. Given: $\angle 1$ and $\angle 2$ form a linear pair;
   $m\angle 2 + m\angle 3 + m\angle 4 = 180°$
   Prove: $m\angle 1 = m\angle 3 + m\angle 4$



Statements	Reasons
1. $\angle 1$ and $\angle 2$ form a linear pair	1. Given
2. $\angle 1$ and $\angle 2$ are supplementary	2. Def. of Lin. Pair
3. $m\angle 2 + m\angle 3 + m\angle 4 = 180°$	3. Given
4. $m\angle 1 + m\angle 2 = 180°$	4. Def of supplementary $\angle$s
5. $m\angle 2 = m\angle 2$	5. Reflexive Prop
6. $m\angle 1 + m\angle 2 = m\angle 2 + m\angle 3 + m\angle 4$	6. Substitution / Transitive
7. $m\angle 1 = m\angle 3 + m\angle 4$	7. Subtraction P.O.E.

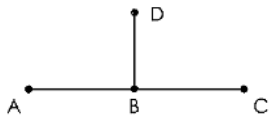
4. Given: B is between A and D; C is between A and D
   Prove: $AB + BD = AC + CD$

Statements	Reasons
1. B is between A and D; C is between A and D	1.
2. $AB + BD = AD$	2.
3. $AC + CD = AD$	3.
4. $AD = AC + CD$	4.
5. $AB + BD = AC + CD$	5.

5. Given: $3x - 2 = x - 8$
Prove: $x = -3$

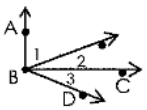
Statements	Reasons
1. $3x - 2 = x - 8$	1.
2. $3x - 2 + 2 = x - 8 + 2$	2.
3. $3x + 0 = x - 6$	3.
4. $3x + (-x) = x + (-x) - 6$	4.
5. $2x = -6$	5.
6. $x = -3$	6.

6. Given: $A, B, and\ C\ are\ collinear;\ AB = BD;\ BD = BC$
Prove: $B\ is\ the\ midpoint\ of\ \overline{AC}$



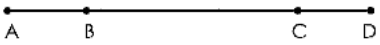
Statements	Reasons
1.	1. Given
2.	2. Transitive Property of Equality
3.	3. Definition of Congruent Segments
4.	4. Definition of Midpoint

7. Given: $\overline{AB} \perp \overline{BC};\ m\angle 2 = m\angle 3$
Prove: $m\angle 1 + m\angle 3 = 90°$



Statements	Reasons
1. $\overline{AB} \perp \overline{BC};\ m\angle 2 = m\angle 3$	1.
2.	2.
3.	3.
4.	4.
5.	5.
6. $m\angle 1 + m\angle 3 = 90°$	6.

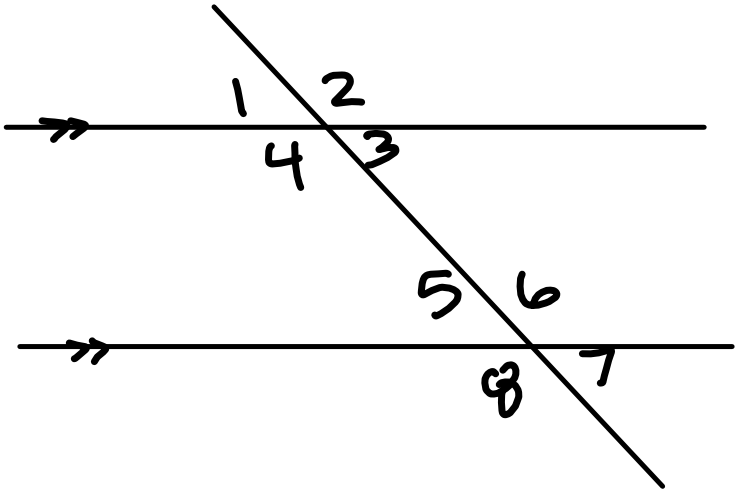
8. Given: $AD = 2AB + BC$
Prove: $\overline{AB} \cong \overline{CD}$



Statements	Reasons
1. $AD = 2AB + BC$	1. Given
2. $AD = AB + BC + CD$	2. Segment Add Post.
3. $2AB + BC = AB + BC + CD$	3. Substitution
4. $AB = AB,\ BC = BC$	4. Reflexive
5. $2AB = AB + CD$	5. Subtraction P.O.E.
6. $AB = CD$	6. Subtraction P.O.E.
7. $\overline{AB} \cong \overline{CD}$	7. Definition of $\cong$ Segments

Quiz 6A and 6B tomorrow!

Grab a scratch paper and draw this picture...

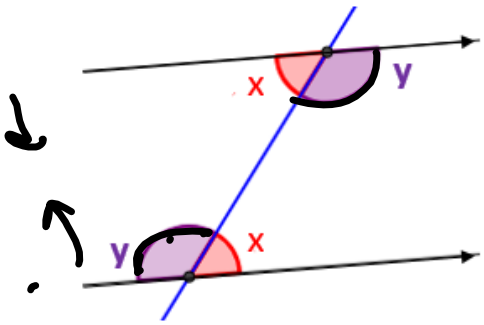


Parallel Lines Activity!

Parallel Line Angle Relationships

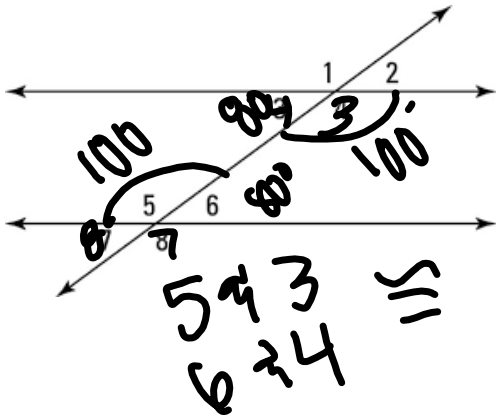
Alternate Interior Angles

Alternate Interior Angles



Alternate interior angles are congruent

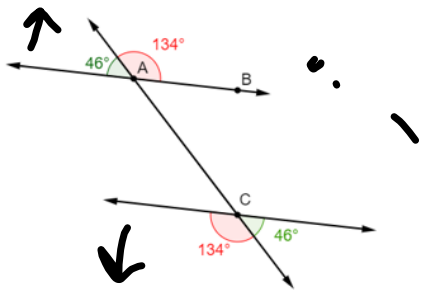
Alt Int



Parallel Line Angle Relationships

Alternate Exterior Angles

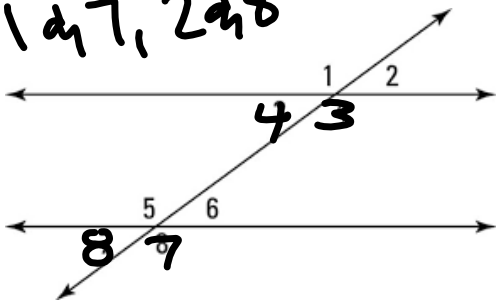
Alternate Exterior Angles



Alternate exterior angles are congruent

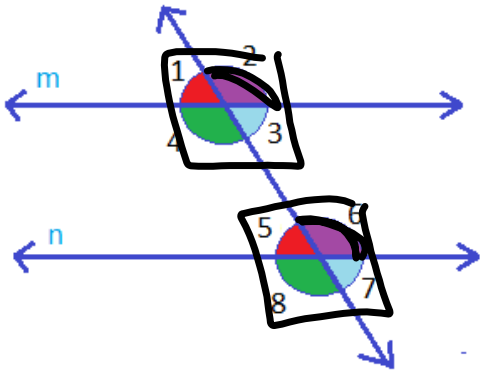
AltExt ≅

147, 248



Parallel Line Angle Relationships

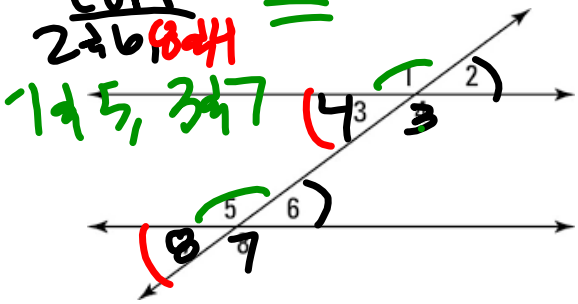
Corresponding Angles



Corr ≅

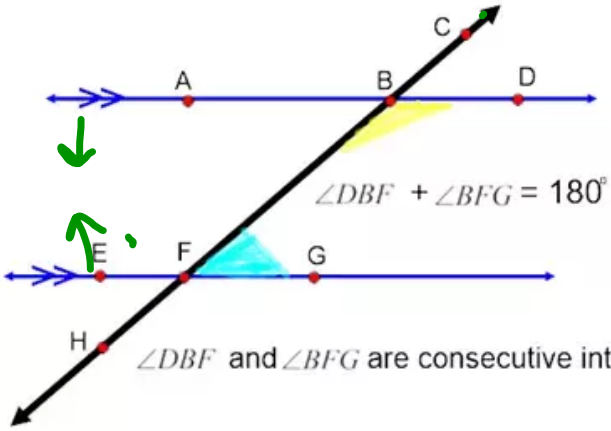
2 & 6, 4 & 8

1 & 5, 3 & 7



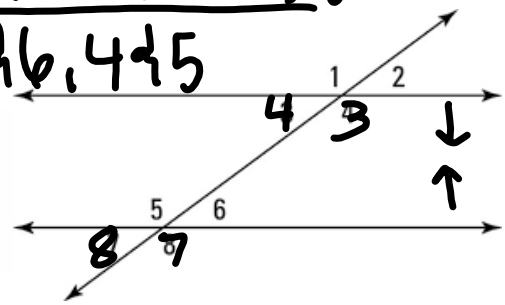
Parallel Line Angle Relationships

Consecutive (same-side) interior angles



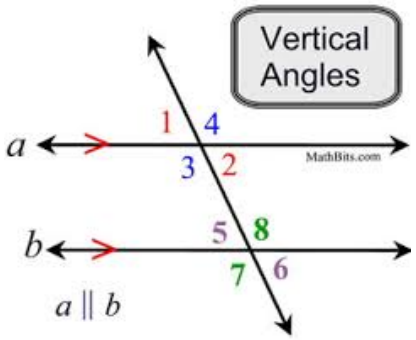
Con-Int(SS) sum to 180°

346,425



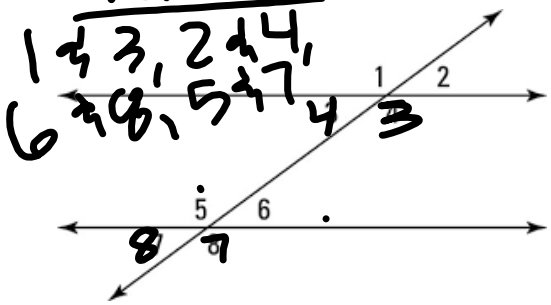
Parallel Line Angle Relationships

Vertical Angles



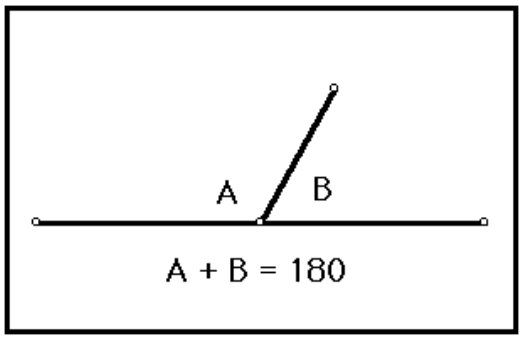
Vertical ≅

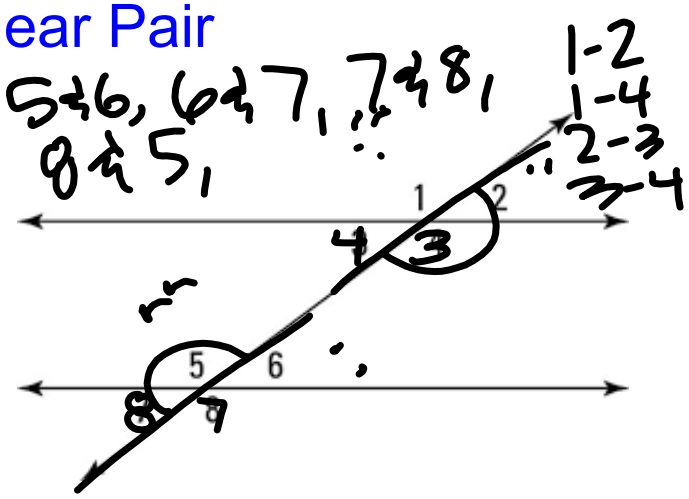
1 & 3, 2 & 4,
6 & 8, 5 & 7



Parallel Line Angle Relationships

Linear Pair



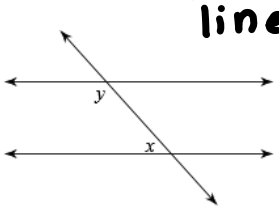


Geometry Name_____ ID: 1

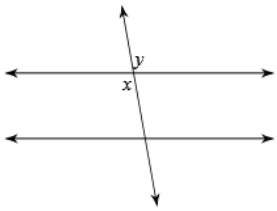
Assignment Date_____ Period____

Identify each pair of angles as corresponding, alternate interior, alternate exterior, consecutive interior, vertical, or adjacent.

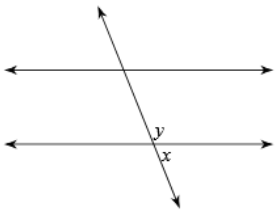
1) linear pair



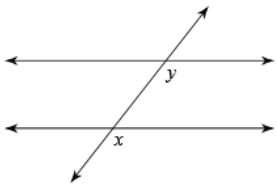
2) (same side)



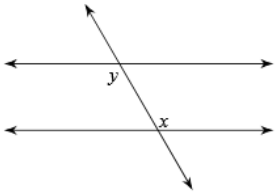
3)



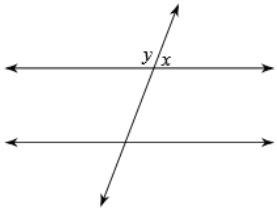
4)



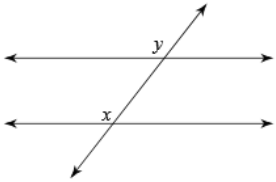
5)



6)



7)



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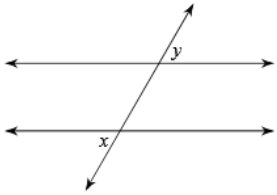
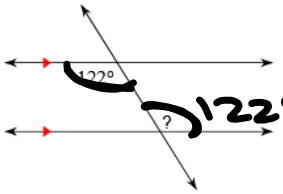


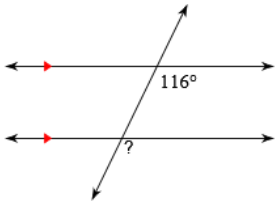
Find the measure of each angle indicated.

9)

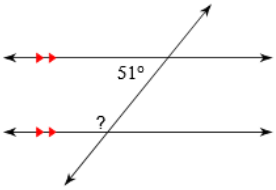


122°

10)



11)



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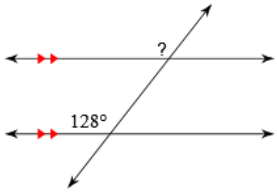
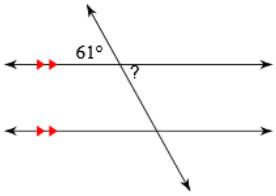
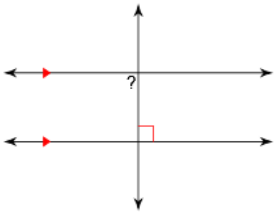


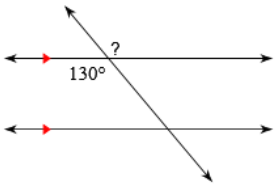
13)



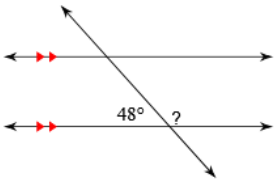
14)



15)

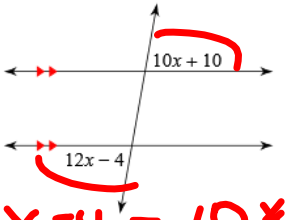


16)



Solve for x.

17)



$12x-4=10x+10$

$-10x \quad -10x$

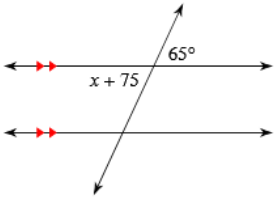
$2x-4=10$

$+4 \quad +4$

$\frac{2x}{2}=\frac{14}{2}$

$x=7$

18)



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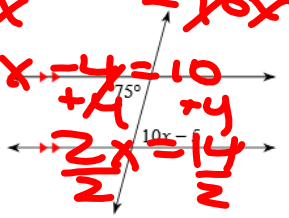
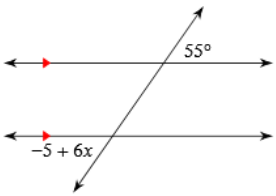
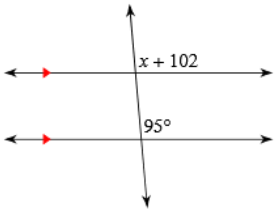


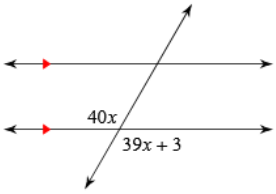
20)



21)



22)



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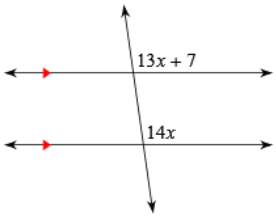
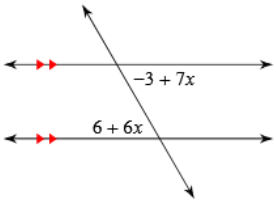


24)



Answers to Assignment (ID: 1)

1) consecutive interior	2) vertical	3) adjacent	4) corresponding
5) alternate interior	6) adjacent	7) corresponding	8) alternate exterior
9) 122°	10) 116°	11) 129°	12) 128°
13) 61°	14) 90°	15) 130°	16) 132°
17) 7	18) −10	19) 8	20) 10
21) −7	22) 3	23) 7	24) 9