Unit: Angles & Triangles
Student Handout 1

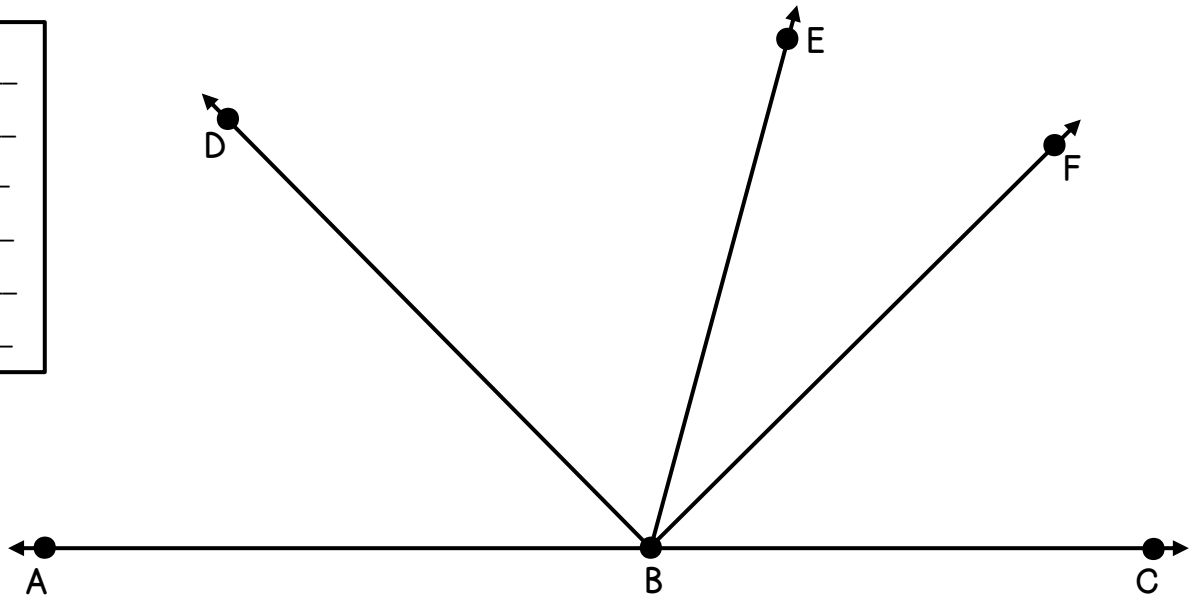
Name _____

Date _____Pd_____

COMPLEMENTARY AND SUPPLEMENTARY ANGLES

Use a protractor to measure the size of each angle and complete the table below.

m∠ABC = _____
m∠ABD = _____
m∠EBF = _____
m∠EBC = _____
m∠DBC = _____
m∠DBE = _____

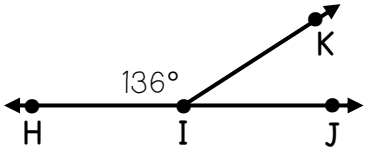


What is the sum of ∠ABD and ∠DBC? How does it compare to the measure of ∠ABC?

	DEFINITION	EXAMPLES
ACUTE ANGLE	An angle that measures _____ 90°.	
OBTUSE ANGLE	An angle that measures between _____ and _____.	
RIGHT ANGLE	An angle that measures _____ 90°.	
STRAIGHT ANGLE	An angle that measures _____ 180°.	
COMPLEMENTARY ANGLES	A pair of angles that have a sum of _____.	
SUPPLEMENTARY ANGLES	A pair of angles that have a sum of _____.	

In 1-2, use your understanding of angle relationships to set up an equation and solve for the missing angle measure.

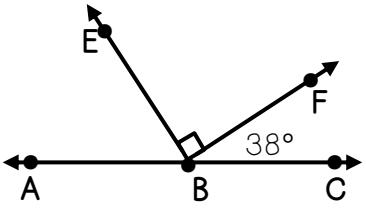
1. What is the measure of angle KIJ?



a. equation: _____

b. m∠KIJ _____

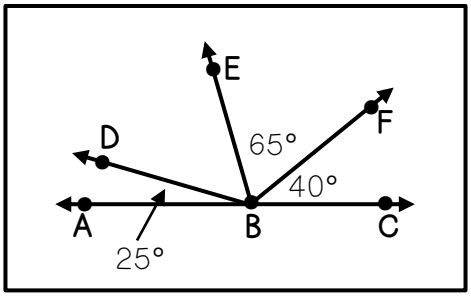
2. What is the measure of angle ABE?



a. equation: _____

b. m∠ABE _____

3. Use the diagram below to mark each statement as true or false.



_____ a. ∠ABD and ∠EBF are complementary angles

_____ b. ∠DBE measures 50°

_____ c. ∠FBC is an acute angle

_____ d. ∠ABF and ∠EBC are supplementary angles

Apply your understanding of angle relationships to answer the questions below.

4. Angles A and B are supplementary angles. The measure of angle A is 42°. Find the measure of ∠B.

a. equation: _____

b. m∠B _____

5. The measure of angle C is 12°. Angles C and D are complementary angles. Find m∠D.

a. equation: _____

b. m∠D _____

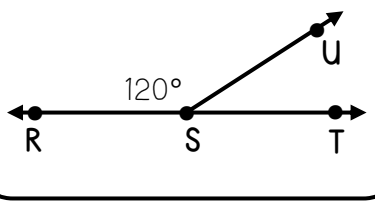
6. Angle F and angle G are complementary. Angle F measures (4x+5)° and angle G measures 15°. Find the value of x and the measure of each angle.

a. equation: _____

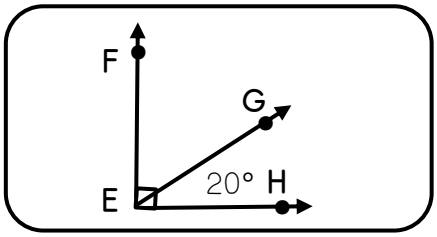
b. x = _____, m∠F _____, m∠G _____

7. Three students were asked to sketch a diagram that included an angle measure of 60°. Circle the name of the student(s) who correctly completed the task.

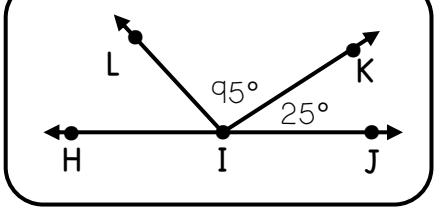
MAYA



ELLIS



JAKE



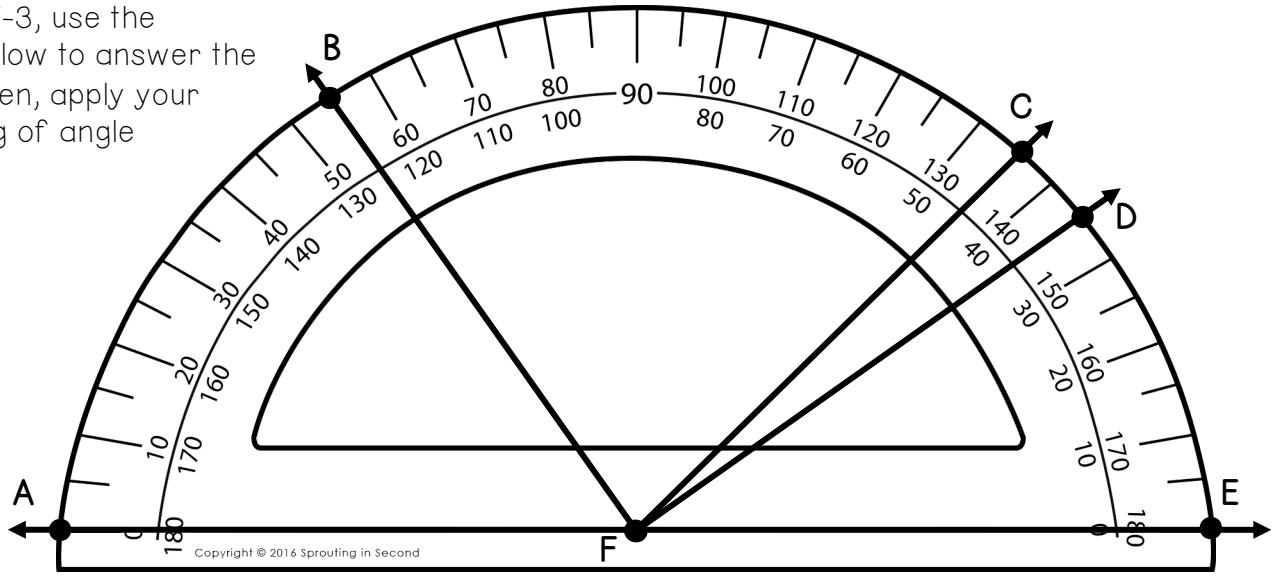
Unit: Angles & Triangles
Homework 1

Name _____

Date _____Pd_____

COMPLEMENTARY AND SUPPLEMENTARY ANGLES

In questions 1-3, use the protractor below to answer the questions. Then, apply your understanding of angle relationships.



1. Determine the measure of each angle below.

A	B	C	D
m∠AFC = _____	m∠CFB = _____	m∠AFD = _____	m∠EFC = _____

2. Find the angle that makes each set supplementary angles.

∠AFB and _____

∠AFC and _____

∠AFD and _____

3. Find the angle that makes each set complementary angles.

∠BFC and _____

∠AFB and _____

4. Angles A and B are supplementary angles. The measure of angle A is 38°. Find the measure of ∠B.

a. equation: _____

b. m∠B _____

5. The measure of angle C is 20.5°. Angles C and D are complementary angles. Find m∠D.

a. equation: _____

b. m∠D _____

6. Angle F and angle G are complementary. Angle F measures (2x+7)° and angle G measures 18°. Find the value of x and the measure of each angle.

a. equation: _____

b. x = _____, m∠F _____, m∠G _____

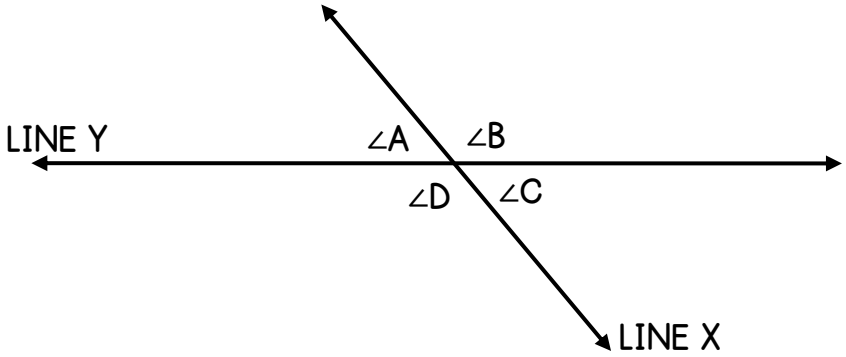
Unit: Angles & Triangles
Student Handout 2

Name _____

Date _____Pd_____

VERTICAL AND ADJACENT ANGLES

In the picture below, Lines X and Y are straight lines that intersect. Use a protractor to measure each of the 4 angles that were formed and complete the table.



m∠A = _____
m∠B = _____
m∠C = _____
m∠D = _____

a. What do you notice about the angle measures?

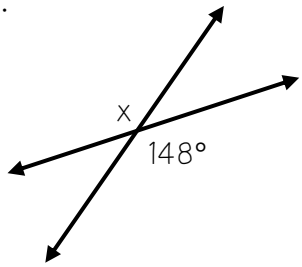
b. What do you notice about the sum of all four angles above?

Two types of special angles are formed when two lines intersect. Use the picture above and the table to help you define and describe these types of angle pairs.

	DEFINITION	EXAMPLES
VERTICAL ANGLES	A pair of _____ angles formed by _____ lines; the angles are _____	∠____ and ∠____ ∠____ and ∠____
ADJACENT ANGLES	Two angles that share a common _____ and a common _____; if the two angles form a straight line, they are supplementary and have a sum of _____	∠____ and ∠____ ∠____ and ∠____

Use what you know about intersecting lines to label the missing angles in the pictures below.

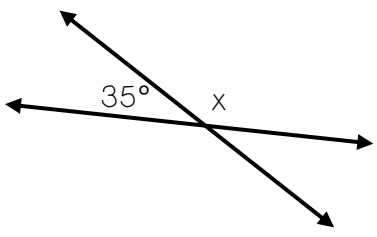
1.



x = _____

type of angle pair: _____

2.

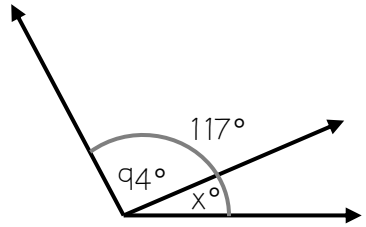


x = _____

type of angle pair: _____

Use your understanding of angle relationships to set up and solve an equation to find the missing angle measures.

3.

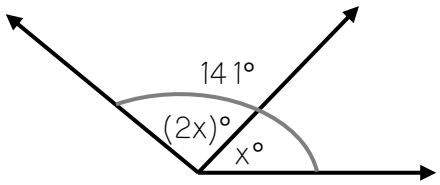


equation: _____

value of x: _____

angle measures: _____

4.

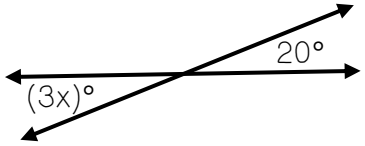


equation: _____

value of x: _____

angle measures: _____

5.



equation: _____

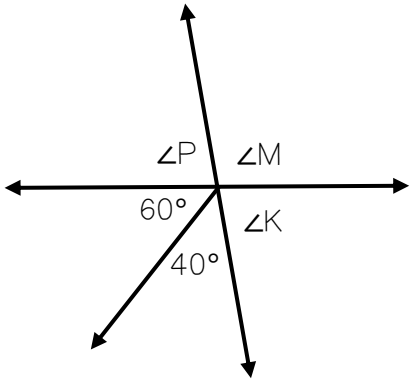
value of x: _____

angle measures: _____

Angle relationships allow us to determine any unknown _____ .

All angles around a _____ will always have a sum of _____ .

6. Determine the missing angle measures.



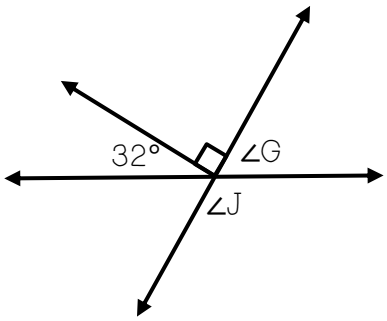
equation: _____

m∠K = _____

equation: _____

m∠M = _____

7. Determine the missing angle measures.



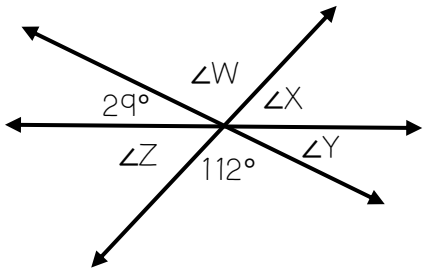
equation: _____

m∠G = _____

equation: _____

m∠J = _____

8. Determine the missing angle measures.



equation: _____

m∠Z = _____

Use your knowledge of vertical angles to find the measure of each angle.

m∠W = _____

m∠X = _____

m∠Y = _____

Summarize today's lesson:

Unit: Angles & Triangles
Homework 2

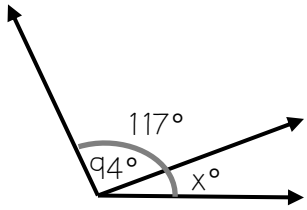
Name _____

Date _____Pd_____

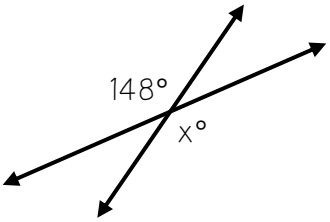
VERTICAL AND ADJACENT ANGLES

Answer each question below. Match your answers in the table to solve the riddle.

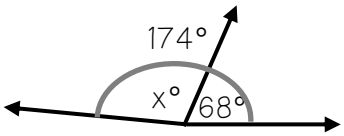
1 Find the value of x.



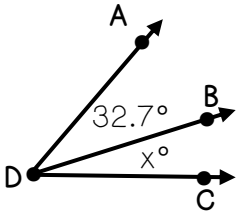
2 Find the value of x.



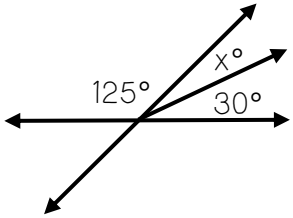
3 Find the value of x.



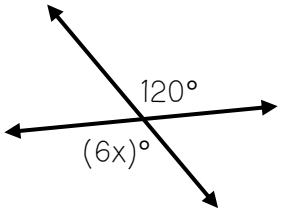
4 If the measure of ∠ADC is 50°, then what is the measure of ∠BDC?



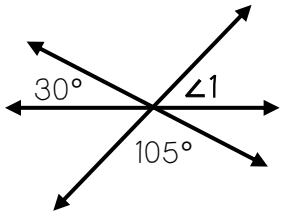
5 Find the value of x.



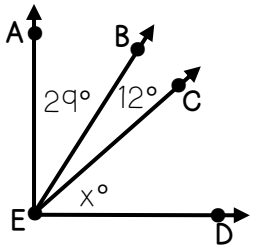
6 Find the value of x.



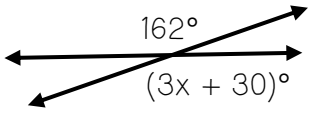
7 Find the measure of ∠1.



8 If the measure of ∠AED is 89°, then what is the measure of ∠CED?



9 Find the value of x.



W: 76°	S: 25°	T: 44°	N: 90°	U: 20°
L : 23°	H: 119°	M: 106°	P: 148°	C: 95°
A: 107°	E: 17.3°	D: 67°	R: 45°	I: 48°

WHAT DIY TOOLS DO YOU USE IN MATH?

___	___	___	___	___	___	___	___	___	___	___
3	6	1	9	8	2	1	8	4	7	5

Unit: Angles & Triangles
Mini-Quiz 1

Name _____

Date _____ Pd_____

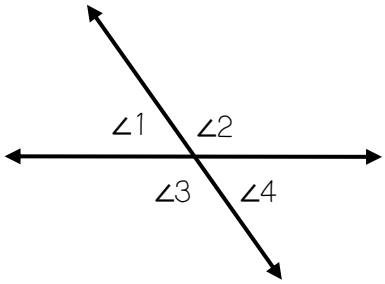
ANGLE RELATIONSHIPS MINI-QUIZ

Use your understanding of angle relationships to solve the questions below.

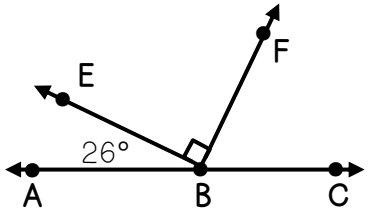
1. Angle 4 and Angle _____ are vertical angles.

2. Angle 3 is adjacent to which angles?

   A. Angles 1 and 2 B. Angles 1 and 4
   C. Angles 2 and 3 D. Angles 2 and 4

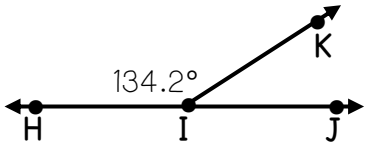


3. Find the m∠FBC.



x = _____

4. Find the missing angle measure.



_____

5. Angle F and angle G are complementary. Angle F measures $(2x+10)°$ and angle G measures 30°. Find the value of x.

_____

Unit: Angles & Triangles
Mini-Quiz 1

Name _____

Date _____ Pd_____

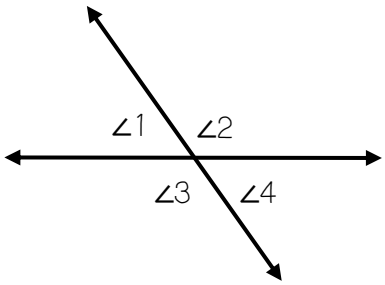
ANGLE RELATIONSHIPS MINI-QUIZ

Use your understanding of angle relationships to solve the questions below.

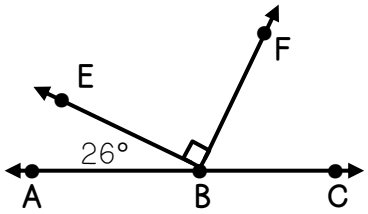
1. Angle 4 and Angle _____ are vertical angles.

2. Angle 3 is adjacent to which angles?

   A. Angles 1 and 2 B. Angles 1 and 4
   C. Angles 2 and 3 D. Angles 2 and 4

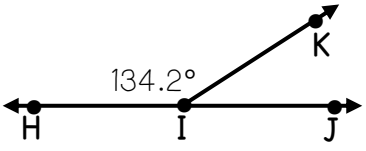


3. Find the m∠FBC.



x = _____

4. Find the missing angle measure.



_____

5. Angle F and angle G are complementary. Angle F measures $(2x+10)°$ and angle G measures 30°. Find the value of x.

_____

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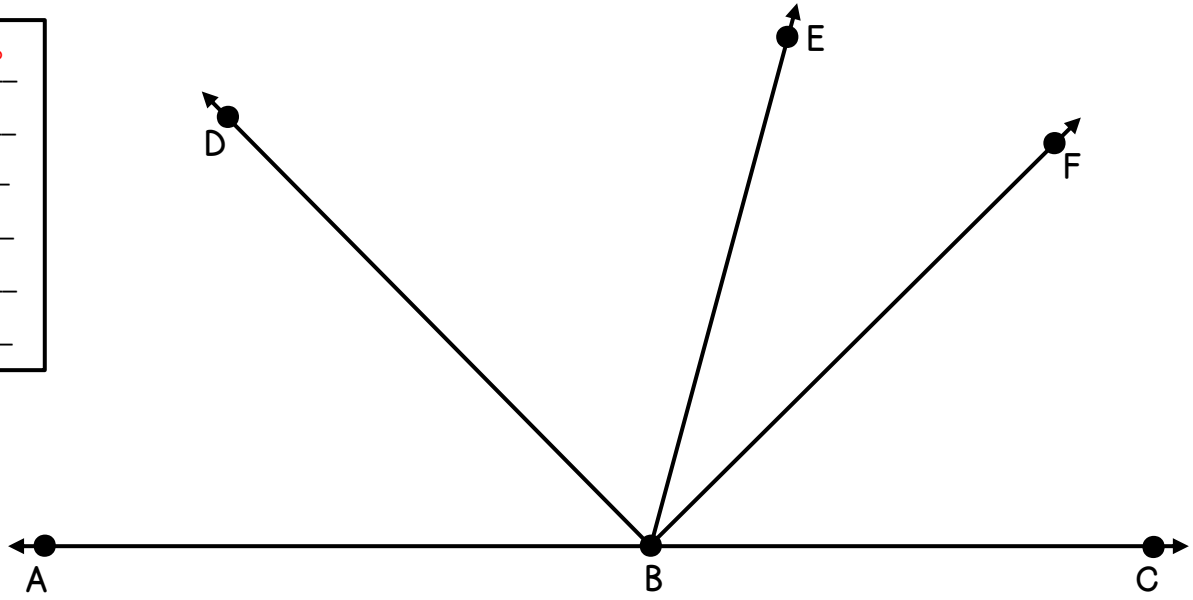
Unit: Angles & Triangles
Student Handout 1

*Students will need a protractor and may need to use a straightedge to extend the line for measuring.

COMPLEMENTARY AND SUPPLEMENTARY ANGLES

Use a protractor to measure the size of each angle and complete the table below.

m∠ABC = 180°
m∠ABD = 45°
m∠EBF = 30°
m∠EBC = 75°
m∠DBC = 135°
m∠DBE = 60°



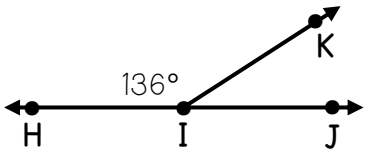
What is the sum of ∠ABD and ∠DBC? How does it compare to the measure of ∠ABC?

The sum of ∠ABD and ∠DBC is 180°, which equals the measure of ∠ABC.

	DEFINITION	EXAMPLES
ACUTE ANGLE	An angle that measures _less than_ 90°.	∠ABD, ∠EBF, ∠FBC, ∠EBC, ∠DBE
OBTUSE ANGLE	An angle that measures between _90°_ and _180°_.	∠ABE, ∠DBC, ∠ABF
RIGHT ANGLE	An angle that measures _exactly_ 90°.	∠DBF
STRAIGHT ANGLE	An angle that measures _exactly_ 180°.	∠ABC
COMPLEMENTARY ANGLES	A pair of angles that have a sum of _90°_.	∠DBE and ∠EBF
SUPPLEMENTARY ANGLES	A pair of angles that have a sum of _180°_.	∠ABD and ∠DBC

In 1-2, use your understanding of angle relationships to set up an equation and solve for the missing angle measure.

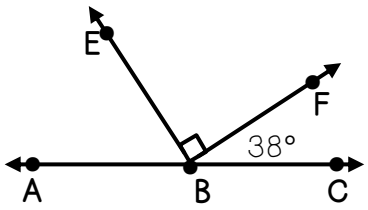
1. What is the measure of angle KIJ?



a. equation: 136 + x = 180

b. m∠KIJ 44°

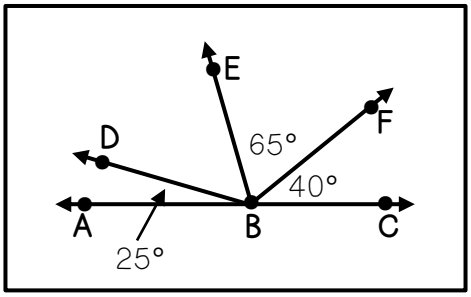
2. What is the measure of angle ABE?



a. equation: 90 + 38 + x = 180

b. m∠ABE 52°

3. Use the diagram below to mark each statement as true or false.



true a. ∠ABD and ∠EBF are complementary angles

true b. ∠DBE measures 50°

true c. ∠FBC is an acute angle

false d. ∠ABF and ∠EBC are supplementary angles

Apply your understanding of angle relationships to answer the questions below.

4. Angles A and B are supplementary angles. The measure of angle A is 42°. Find the measure of ∠B.

a. equation: 42 + x = 180

b. m∠B 138°

5. The measure of angle C is 12°. Angles C and D are complementary angles. Find m∠D.

a. equation: 12 + x = 90

b. m∠D 78°

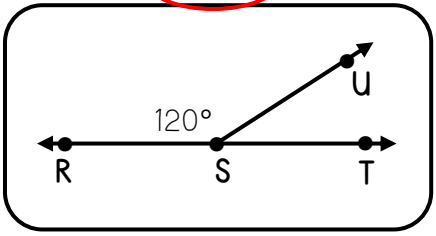
6. Angle F and angle G are complementary. Angle F measures (4x+5)° and angle G measures 15°. Find the value of x and the measure of each angle.

a. equation: 4x + 20 = 90

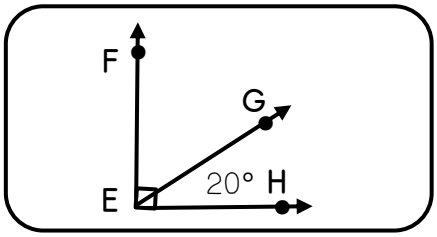
b. x = 17.5, m∠F 75°, m∠G 15°

7. Three students were asked to sketch a diagram that included an angle measure of 60°. Circle the name of the student(s) who correctly completed the task.

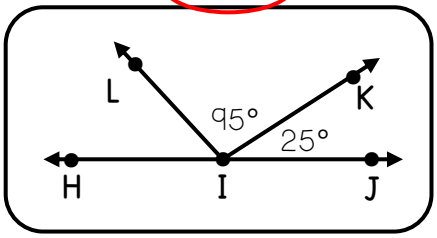
MAYA



ELLIS



JAKE



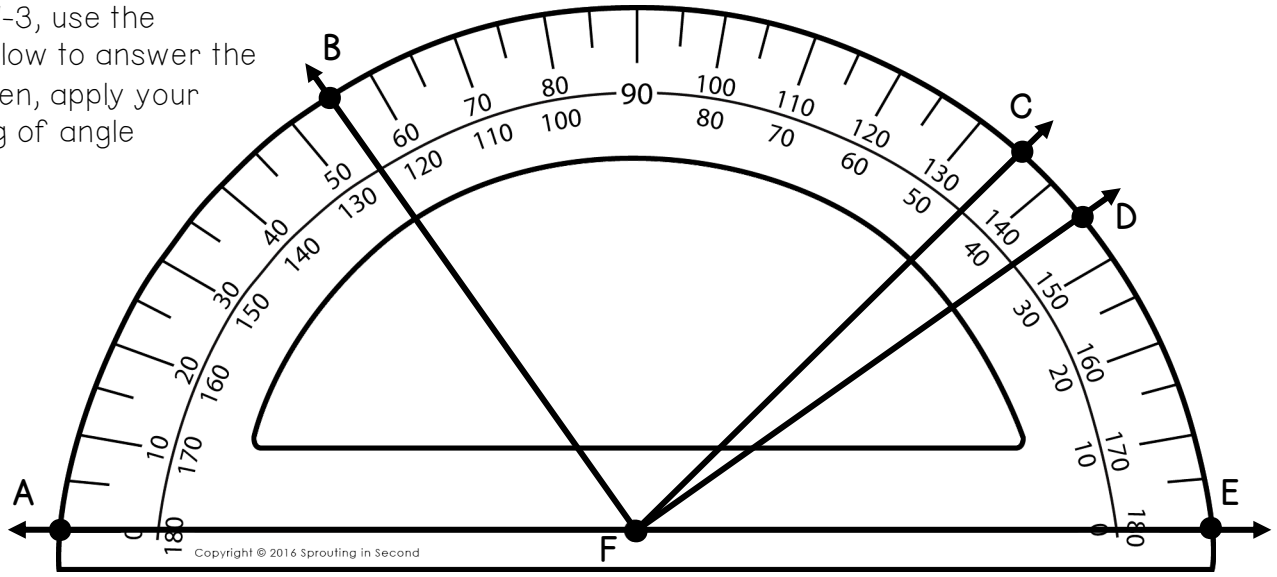
Unit: Angles & Triangles
Homework 1

Name _____

Date _____ Pd _____

COMPLEMENTARY AND SUPPLEMENTARY ANGLES

In questions 1-3, use the protractor below to answer the questions. Then, apply your understanding of angle relationships.



1. Determine the measure of each angle below.

A	B	C	D
m∠AFC = 135°	m∠CFB = 80°	m∠AFD = 145°	m∠EFC = 45°

2. Find the angle that makes each set supplementary angles.

∠AFB and ∠BFE

∠AFC and ∠CFE

∠AFD and ∠DFE

3. Find the angle that makes each set complementary angles.

∠BFC and ∠CFD

∠AFB and ∠DFE

4. Angles A and B are supplementary angles. The measure of angle A is 38°. Find the measure of ∠B.

a. equation: 38 + x = 180

b. m∠B 142°

5. The measure of angle C is 20.5°. Angles C and D are complementary angles. Find m∠D.

a. equation: 20.5 + x = 90

b. m∠D 69.5°

6. Angle F and angle G are complementary. Angle F measures (2x+7)° and angle G measures 18°. Find the value of x and the measure of each angle.

a. equation: 2x + 25 = 90

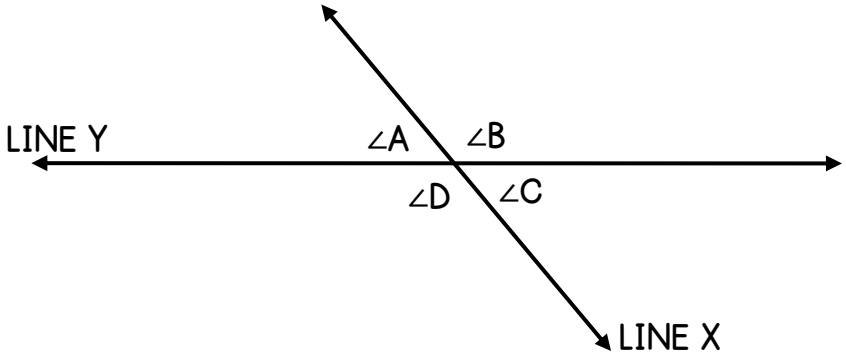
b. x = 32.5, m∠F 72°, m∠G 18°

Unit: Angles & Triangles
Student Handout 2

*Students will need a protractor and may need to use a straightedge to extend the lines for measuring.

VERTICAL AND ADJACENT ANGLES

In the picture below, Lines X and Y are straight lines that intersect. Use a protractor to measure each of the 4 angles that were formed and complete the table.



m∠A = _____
m∠B = _____
m∠C = _____
m∠D = _____

a. What do you notice about the angle measures?

∠A and ∠C are congruent or equal, and ∠B and ∠D are congruent or equal

b. What do you notice about the sum of all four angles above?

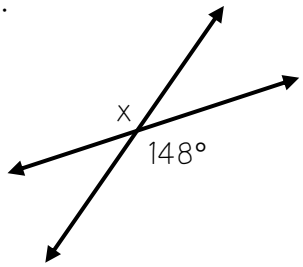
the sum of all four angles is 360°

Two types of special angles are formed when two lines intersect. Use the picture above and the table to help you define and describe these types of angle pairs.

	DEFINITION	EXAMPLES
VERTICAL ANGLES	A pair of ___opposite___ angles formed by ___intersecting___ lines; the angles are ___congruent___	∠___A___ and ∠___C___ ∠___B___ and ∠___D___
ADJACENT ANGLES	Two angles that share a common ___side___ and a common ___vertex___; if the two angles form a straight line, they are supplementary and have a sum of ___180°___	∠___A___ and ∠___B___ ∠___C___ and ∠___D___

Use what you know about intersecting lines to label the missing angles in the pictures below.

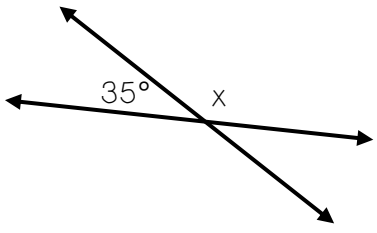
1.



x = ___148°___

type of angle pair: ___vertical angles___

2.

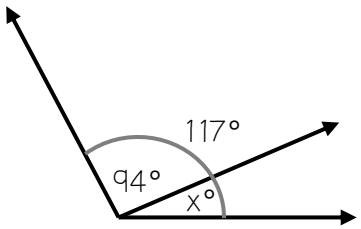


x = ___145°___

type of angle pair: ___adjacent angles___

Use your understanding of angle relationships to set up and solve an equation to find the missing angle measures.

3.

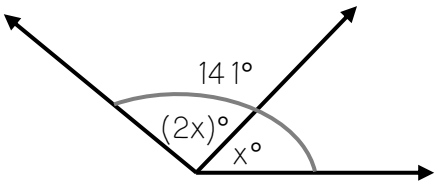


equation: x + 94 = 117

value of x: 23

angle measures: 94°, 23°

4.

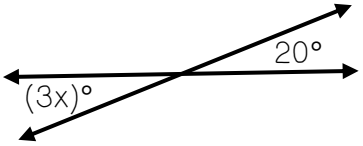


equation: 2x + x = 141

value of x: 47

angle measures: 47°, 94°

5.



equation: 3x = 20

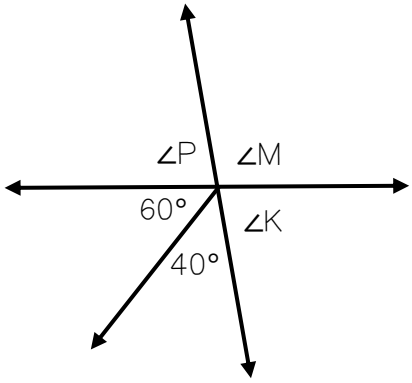
value of x: $6.\overline{6}$

angle measures: 20°, 20°

Angle relationships allow us to determine any unknown angle measures .

All angles around a point or vertex will always have a sum of 360° .

6. Determine the missing angle measures.



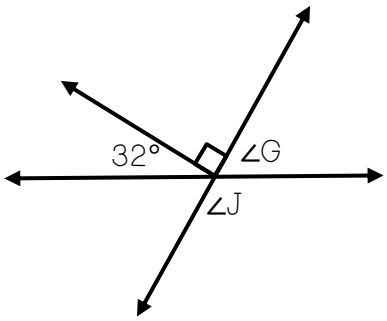
equation: 60 + 40 + k = 180

m∠K = 80°

equation: m = 60 + 40

m∠M = 100°

7. Determine the missing angle measures.



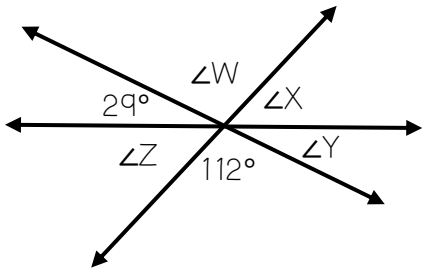
equation: 32 + 90 + g = 180

m∠G = 58°

equation: 58 + j = 180

m∠J = 122°

8. Determine the missing angle measures.



equation: 29 + 112 + z = 180

m∠Z = 39°

Use your knowledge of vertical angles to find the measure of each angle.

m∠W = 112°

m∠X = 39°

m∠Y = 29°

Summarize today's lesson:

Unit: Angles & Triangles
Homework 2

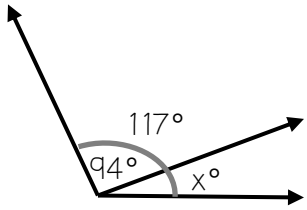
Name _____

Date _____ Pd_____

VERTICAL AND ADJACENT ANGLES

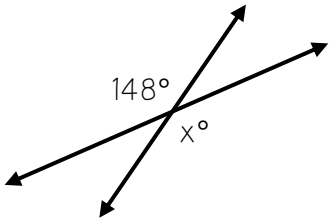
Answer each question below. Match your answers in the table to solve the riddle.

1 Find the value of x.



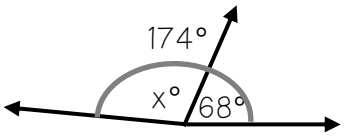
x = 23

2 Find the value of x.



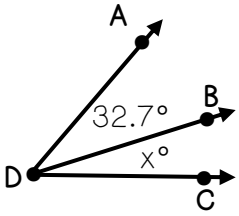
x = 148

3 Find the value of x.



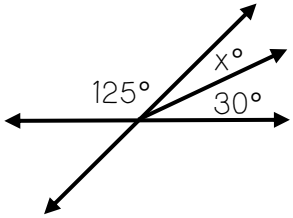
x = 106

4 If the measure of ∠ADC is 50°, then what is the measure of ∠BDC?



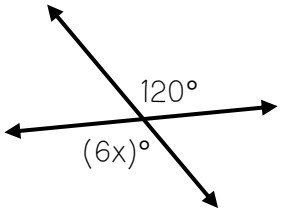
x = 17.3

5 Find the value of x.



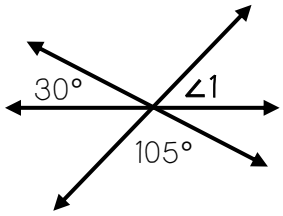
x = 25

6 Find the value of x.



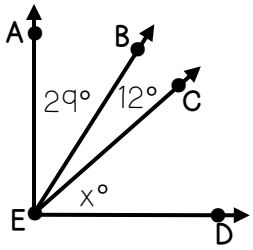
x = 20

7 Find the measure of ∠1.



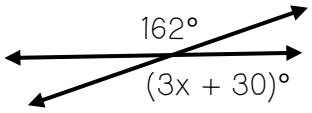
∠1 = 45

8 If the measure of ∠AED is 89°, then what is the measure of ∠CED?



x = 48

9 Find the value of x.



x = 44

W: 76°	S: 25°	T: 44°	N: 90°	U: 20°
L : 23°	H: 119°	M: 106°	P: 148°	C: 95°
A: 107°	E: 17.3°	D: 67°	R: 45°	I: 48°

WHAT DIY TOOLS DO YOU USE IN MATH?

M	U	L	T	I	P	L	I	E	R	S
3	6	1	9	8	2	1	8	4	7	5

Unit: Angles & Triangles
Mini-Quiz 1

Name _____

Date _____ Pd_____

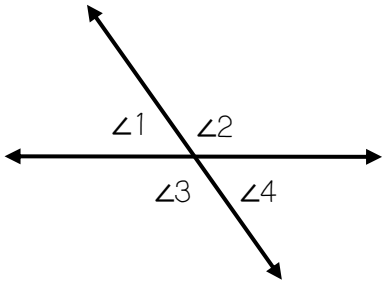
ANGLE RELATIONSHIPS MINI-QUIZ

Use your understanding of angle relationships to solve the questions below.

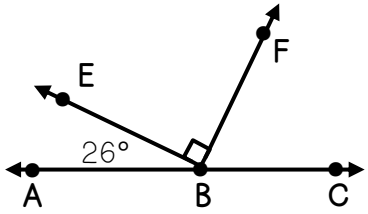
1. Angle 4 and Angle ___1___ are vertical angles.

2. Angle 3 is adjacent to which angles?

   A. Angles 1 and 2
   B. Angles 1 and 4
   C. Angles 2 and 3
   D. Angles 2 and 4

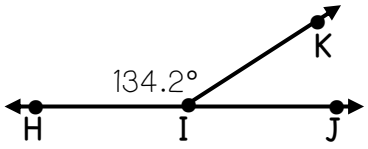


3. Find the m∠FBC.



x = ___64°___

4. Find the missing angle measure.



___45.8°___

5. Angle F and angle G are complementary. Angle F measures (2x+10)° and angle G measures 30°. Find the value of x.

___x = 25___

Unit: Angles & Triangles
Mini-Quiz 1

Name _____

Date _____ Pd_____

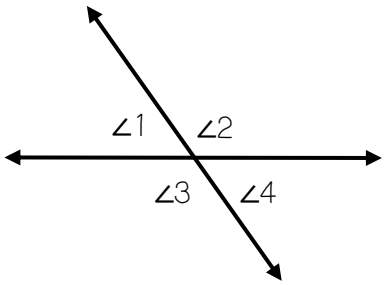
ANGLE RELATIONSHIPS MINI-QUIZ

Use your understanding of angle relationships to solve the questions below.

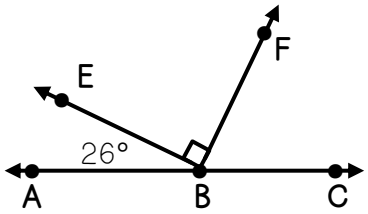
1. Angle 4 and Angle _____ are vertical angles.

2. Angle 3 is adjacent to which angles?

   A. Angles 1 and 2
   B. Angles 1 and 4
   C. Angles 2 and 3
   D. Angles 2 and 4

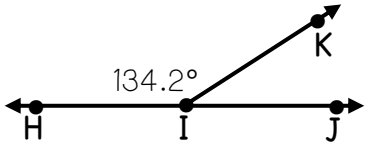


3. Find the m∠FBC.



x = _____

4. Find the missing angle measure.



_____

5. Angle F and angle G are complementary. Angle F measures (2x+10)° and angle G measures 30°. Find the value of x.

_____

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