

# Monday, September 22nd

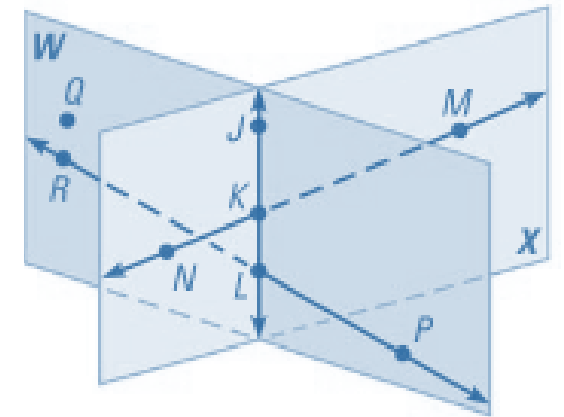
Objective:

SWBAT

Use mathematical properties to break down problems

For numbers 1-8, use the diagram to determine whether the statement is true or false

- Planes  $W$  and  $X$  intersect at  $\overleftrightarrow{KL}$ .
- Points  $Q$ ,  $J$ , and  $M$  are collinear.
- Points  $K$ ,  $L$ ,  $M$ , and  $R$  are coplanar.
- $\overleftrightarrow{MN}$  and  $\overleftrightarrow{RP}$  intersect.
- $\overleftrightarrow{RP} \perp$  plane  $W$
- $\overleftrightarrow{JK}$  lies in plane  $X$ .
- $\angle PLK$  is a right angle.
- $\angle NKL$  and  $\angle JKM$  are vertical angles.



HW: p. 108 #3 and #4

# Properties of Algebra

## Addition Property

If  $a = b$ , then  $a + c = b + c$

$$\text{If } x - 4 = 20$$

$$\quad +4 \quad +4$$

$$x = 24$$

# Properties of Algebra

## Multiplication Property

If  $a = b$ , then  $a * c = b * c$  where  $c \neq 0$

If  $\frac{1}{8} x = 4$ ,

then  $8 * \frac{1}{8} x = 4 * 8$

$x = 32$

# Other properties in Algebra

Reflexive Property  $x = x$

Symmetric Property

If  $a = b$ , then  $b = a$

Transitive Property

If  $a = b$  and  $b = c$ , then  $a = c$

# More properties in Algebra

## Substitution Property

If  $x = 4$ , then  $3x + 2 = 3(4) + 2$

## Distributive Property

$$2(x + 4) = 2x + 2(4)$$

# Using the property of Algebra to solve an equation

$$3x + 12 = 8x - 18$$

Given

$$\begin{array}{r} -3x \\ 3x + 12 = 8x - 18 \\ -3x \end{array}$$

Subtraction Property

$$12 = 5x - 18$$

$$\begin{array}{r} +18 \\ 12 = 5x - 18 \\ +18 \end{array}$$

Addition Property

$$\frac{30}{5} = \frac{5x}{5}$$

Division Property

$$6 = x$$

# 1.4 Angle Addition Postulate

Set up an equation using the Angle Addition Postulate.

$$m\angle RSV + m\angle VST = m\angle RST \quad \text{Angle Addition Postulate.}$$

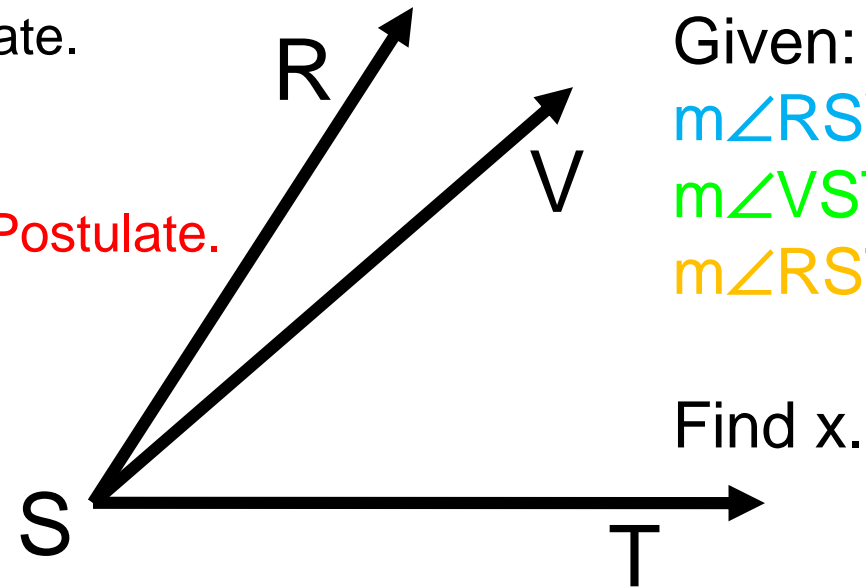
$$x + 5 + 3x - 9 = 68 \quad \text{Substitution}$$

$$4x - 4 = 68$$

+4      +4

$$\frac{4x}{4} = \frac{72}{4}$$

$x = 18$



Given:

$$m\angle RSV = x + 5$$

$$m\angle VST = 3x - 9$$

$$m\angle RST = 68$$

Now that you know  $x = 18$ , find  $m\angle RSV$  and  $m\angle VST$ .

$$m\angle RSV = x + 5$$

$$m\angle RSV = 18 + 5 = 23$$

$$m\angle VST = 3x - 9$$

$$m\angle VST = 3(18) - 9 = 45$$

# Tuesday, September 23

Objective:

SWBAT

Write mathematical proofs

Solve the following equations and express the reason for each step

$$3x - 12 = 7x + 8 \quad \text{Given}$$

$$-4x - 12 = 8 \quad \underline{?}$$

$$-4x = 20 \quad \underline{?}$$

$$x = -5 \quad \underline{?}$$

$$3(7x - 9) - 19x = -15$$

HW: Geo Wksht



# Writing Reasons

$$55z - 3(9z + 12) = -64$$

Given

$$55z - 27z - 36 = -64$$

Distr. Property

$$28z - 36 = -64$$

Combine Like Terms

$$28z = -28$$

Addition Property

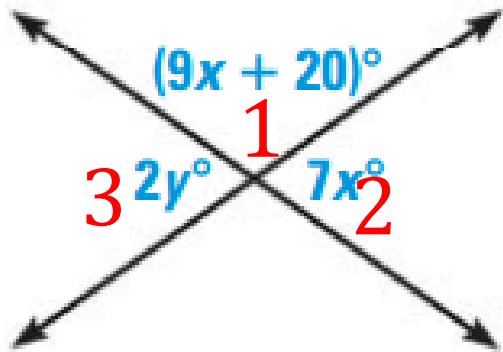
$$z = -1$$

Division Property

# 1.5 Angle Pair Relationships

Find the value of  $x$  and  $y$ . Then find the measure of the angles

What information can we obtain from the diagram?  $\angle 1$  and  $\angle 2$  are supplementary



$\angle 2$  and  $\angle 3$  are vertical angles

Definition of supplementary

$$\angle 1 + \angle 2 = 180^\circ$$

Substitution Property

$$9x + 20 + 7x = 180^\circ$$

Addition Prop. (Combining like terms)

$$16x + 20 = 180^\circ$$

$$\begin{array}{r} -20 \\ -20 \end{array}$$

Subtraction Property

$$\frac{16x}{16} = \frac{160^\circ}{16}$$

Division Property

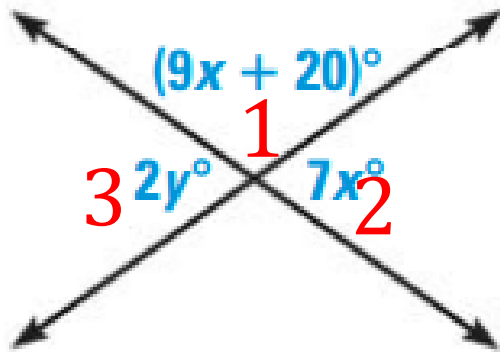
$$x = 10^\circ$$

# 1.5 Angle Pair Relationships

Find the value of  $x$  and  $y$ . Then find the measure of the angles

What information can we obtain from the diagram?  $\angle 1$  and  $\angle 2$  are supplementary

$\angle 2$  and  $\angle 3$  are vertical angles



$$\angle 3 = \angle 2$$

$$2y = 7x$$

$$\frac{2y}{2} = \frac{70}{2}$$

$$y = 35$$

Vertical angles are congruent

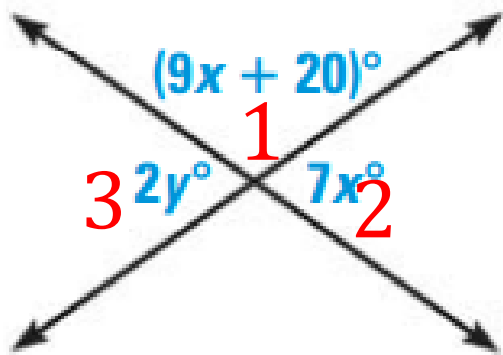
Substitution

Substitution

Division Property

# 1.5 Angle Pair Relationships

Find the value of  $x$  and  $y$ . Then find the measure of the angles



What information can we obtain from the diagram?

$\angle 1$  and  $\angle 2$  are supplementary

$\angle 2$  and  $\angle 3$  are vertical angles

$$\angle 1 + \angle 2 = 180^\circ$$

$$9x + 20 + 7x = 180^\circ$$

$$\begin{array}{r} 16x + 20 = 180^\circ \\ -20 \quad -20 \end{array}$$

$$\frac{16x}{16} = \frac{160^\circ}{16}$$

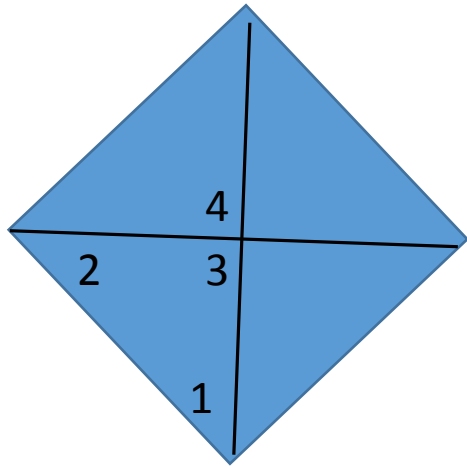
$$x = 10^\circ$$

$$\angle 3 = \angle 2$$

$$2y = 7x$$

$$\frac{2y}{2} = \frac{70}{2}$$

$$y = 35$$



Given:  $m\angle 1 + m\angle 2 + m\angle 3 = 180^\circ$

$$m\angle 1 + m\angle 2 = 93^\circ$$

$$m\angle 3 + m\angle 4 = 180^\circ$$

Find:  $m\angle 4$

Statements	Reasons
$m\angle 1 + m\angle 2 + m\angle 3 = 180^\circ$	Given
$m\angle 1 + m\angle 2 = 93^\circ$	Given
$m\angle 3 + m\angle 4 = 180^\circ$	Given
$m\angle 1 + m\angle 2 + m\angle 3 = m\angle 3 + m\angle 4$	Substitution Property
$m\angle 1 + m\angle 2 = m\angle 4$	Subtraction Property
$93^\circ = m\angle 4$	Substitution Prop of Equality



Given  $AC=BD$ , show that  $AB=CD$

Statements	Reasons
$AC=BD$	Given
$AB + BC = AC$	Segment Addition Postulate
$BC + CD = BD$	Segment Addition Postulate
$AB+ BC = BC + CD$	Substitution Property
$AB = CD$	Subraction Property of Equality

# Properties of Equality

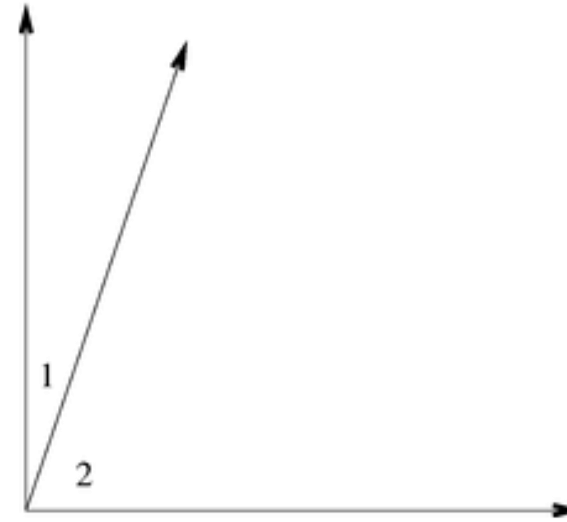
	Segment Length	Angle Measure
Reflexive	$AB = AB$	$m\angle A = m\angle A$
Symmetric	If $AB = CD$ , then $CD = AB$ .	If $m\angle A = m\angle B$ , then $m\angle B = m\angle A$ .
Transitive	If $AB = CD$ and $CD = EF$ , then $AB = EF$ .	If $m\angle A = m\angle B$ and $m\angle B = m\angle C$ , then $m\angle A = m\angle C$ .

# Wednesday, September 24

Objective:

SWBAT

Review topics from sections 1.6,  
2.1-2.4



**Given :**

- $\angle 1$  &  $\angle 2$  are complementary
- $m\angle 2 = 74^\circ$

**Prove :**

$$m\angle 1 = 16^\circ$$

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**Statements****Reasons**

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- |                                              |    |
|----------------------------------------------|----|
| 1. $\angle 1$ & $\angle 2$ are complementary | 1. |
| 2. $m\angle 2 = 74^\circ$                    | 2. |
| 3. $m\angle 1 + m\angle 2 = 90^\circ$        | 3. |
| 4. $m\angle 1 + 74^\circ = 90^\circ$         | 4. |
| 5. $m\angle 1 = 16^\circ$                    | 5. |

HW: STUDY!!!