

Unit 2 – Day 1 – Points, Lines and Planes

Objectives: SWBAT identify Points, Lines, Rays, and Planes.
SWBAT identify Coplanar and Non-Coplanar Points.

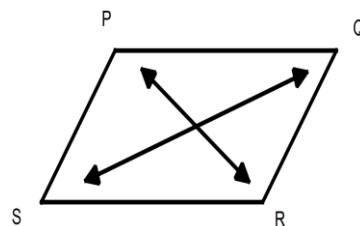
Point

A •



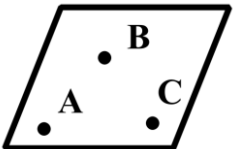
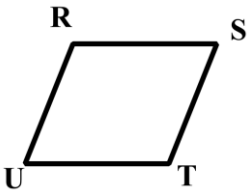
Line



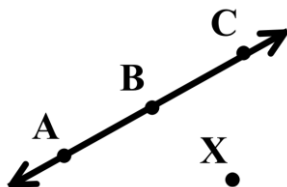
Plane



Notation:

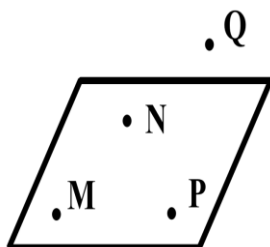
| Name | Correct Notation | Common Mistakes |
|--|------------------|-----------------|
| Point  | | |
| Line  | | |
| Plane (3 Points)  | | |
| Plane (4 Points)  | | |

Collinear Points:



Non-Collinear Points:

Coplanar Points:



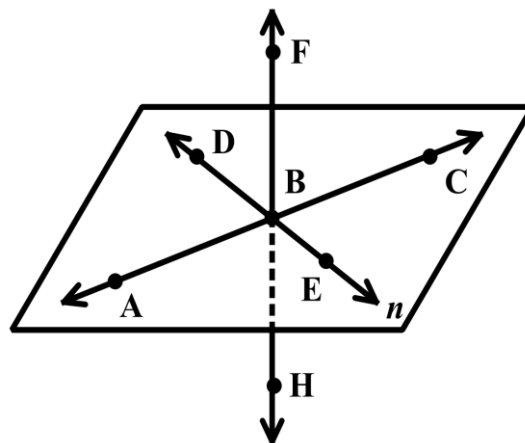
Non coplanar Points:

For 1 – 5, use the diagram to the right, and make sure to use proper notation.

1) Write three other ways to name \overleftrightarrow{BD} .

2) Give two other names for plane n .

a) Explain why \overleftrightarrow{ABC} is not proper way to name plane n .



For the following, determine whether or not the sets are collinear, explain why or why not.

4) B and F

c) \overleftrightarrow{BD} and E

5) \overleftrightarrow{EB} and A

d) plane n and F.

For the following examples, us the diagram to the right.

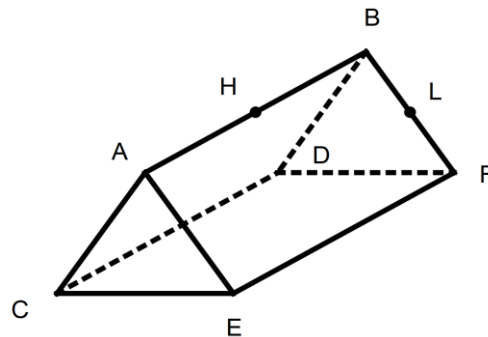
e) How many planes are in the figure?

f) Name three planes.

g) Name three collinear points.

h) Are the points A , H , L and D coplanar? Explain.

i) Are the points B , D , and F coplanar? Explain.



Draw and label a figure for each relationship.

6. \overleftrightarrow{AB} is in plane Q .

7. \overleftrightarrow{ST} intersects \overleftrightarrow{AB} at P .

8. Point X is collinear with points A and P .

9. Point Y is not collinear with points T and P .

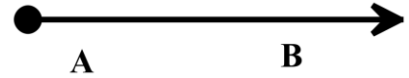
10. Line ℓ contains points X and Y .

11. Nathan's Mother wants him to go to the post office and the supermarket. She tells him that the post office, the supermarket, and their home are collinear. If the post office is between the supermarket and their home; make a map showing the three locations based on this information.

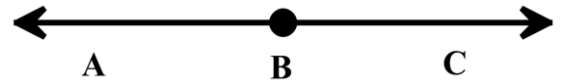
Unit 2 – Day 2 – Angle Basics

Objectives: SWBAT measure and classify angles.
SWBAT Identify and use congruent angles and angle bisectors.

Ray

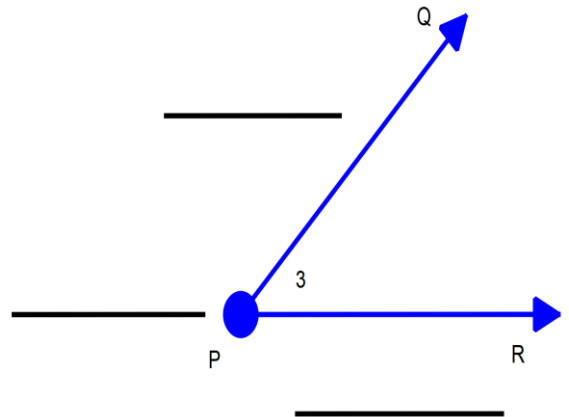


Opposite rays



Angle

Sides

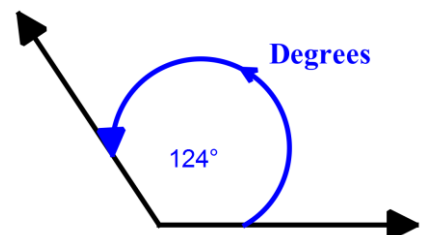


Vertex

Interior of an Angle

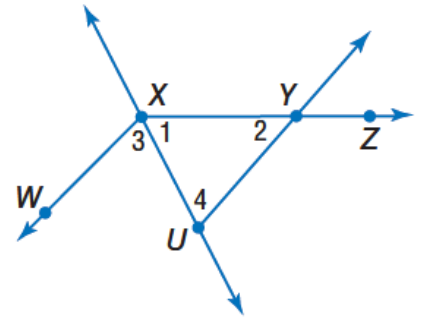
Exterior of an Angle

Degrees



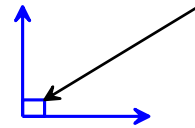
Use the figure at the right.

1. Name the vertex of $\angle 4$.
2. Name the sides of $\angle 3$.
3. What is another name for $\angle 2$?
4. What is another name for $\angle UXY$?
5. Why are $\angle 4$ and $\angle U$ not necessarily the same angle?

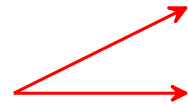


Type of Angles.

RIGHT ANGLE



ACUTE ANGLE



OBTUSE ANGLE

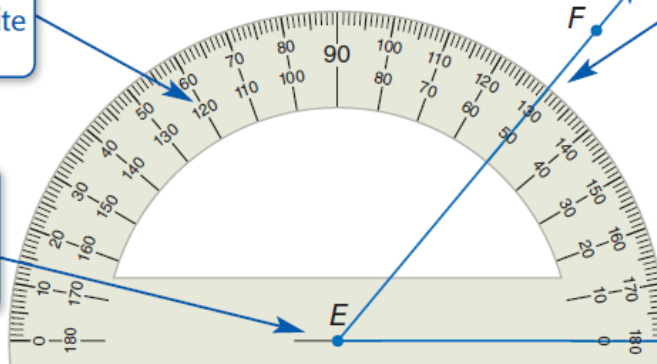


STRAIGHT ANGLE



The protractor has two scales running from 0 to 180 degrees in opposite directions.

Place the center point of the protractor on the vertex.



Since \vec{ED} is aligned with the 0 on the outer scale, use the outer scale to find that \vec{EF} intersects the scale at 50 degrees.

Align the 0 on either side of the scale with one side of the angle.

Examples

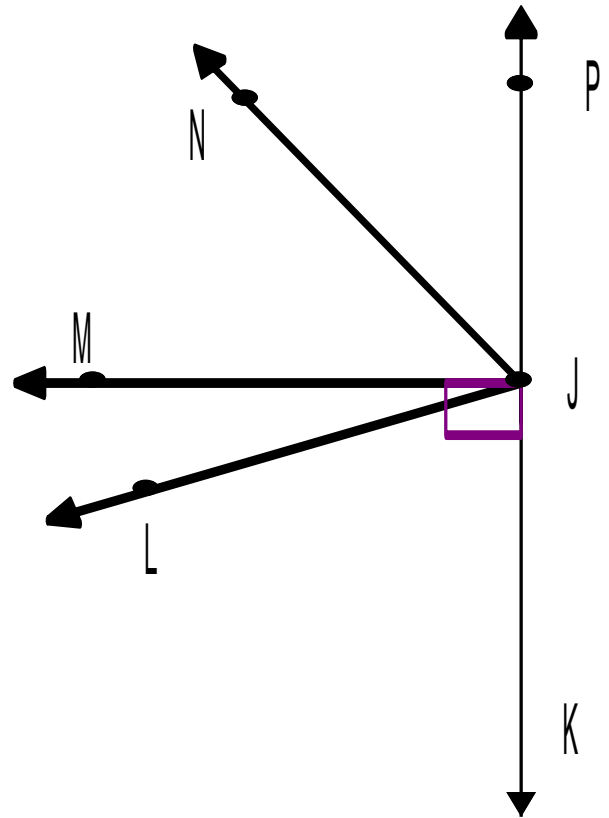
Classify the following angles using a protractor and find the number of degrees.

1. $\angle PJM$

2. $\angle KJL$

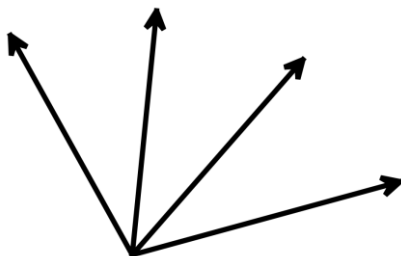
a. $\angle NJK$

b. $\angle PJK$



3. Everybody look at the clock (wait for kids to find the clock..... this might take a while). Bobby was bored, and so he decided to see what kind of angles are formed by the two arms of a clock. He looked 6:00 PM, 9:00 PM, 7:10 PM, and 4:30 PM. However, because he was day dreaming and not paying attention, he could not remember what the differences between a straight, right, acute, and obtuse angles (Karma). Please help out Bobby so he doesn't look like a bum.

c. Find the total number of angles in each diagram.



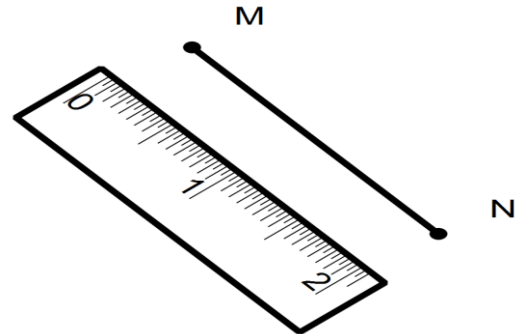
Unit 2 – Day 3 – Linear Measure – Part I

Objectives: SWBAT measure segments
SWBAT calculate with measures

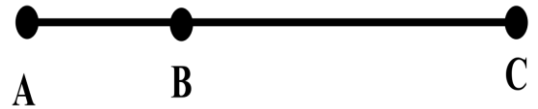
Line Segment



Line Segment Measure

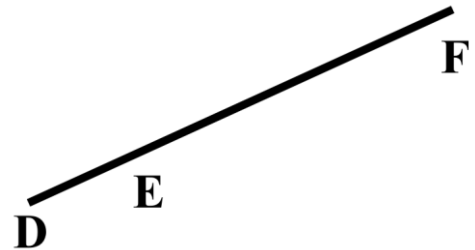
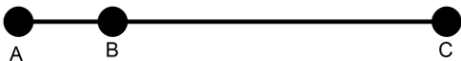


Segment Addition Postulate

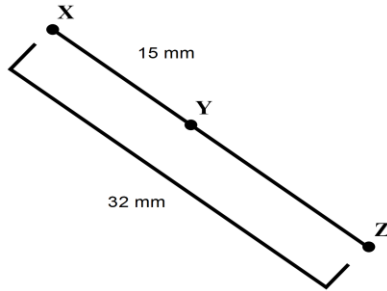


Write the segment addition postulate for each example, then right an equation to solve for the missing piece, and lastly, find the indicated value.

1. If $AB = 3cm$, and $BC = 11cm$, find AC . a. If $EF = 4.5in$, and $ED = 0.9in$, find DF .



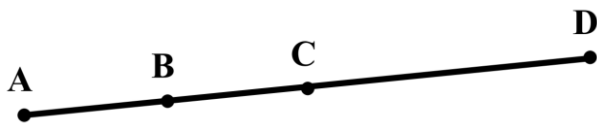
2. Find YZ.



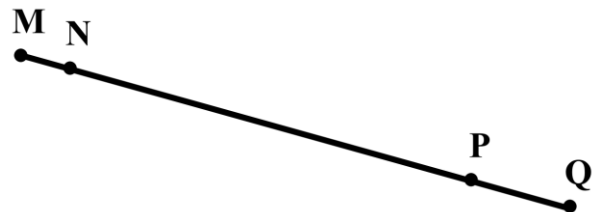
b. If $GK = 75\text{mm}$, and $HK = 0.9\text{in}$, find DF .



3. **Given:** $AB = 4$, $CD = 13$, and $AD = 21$
Find: BC



c. **Given:** $QP = \frac{4}{18}$, $NP = \frac{2}{3}$, and $MQ = 1$
Find: MN



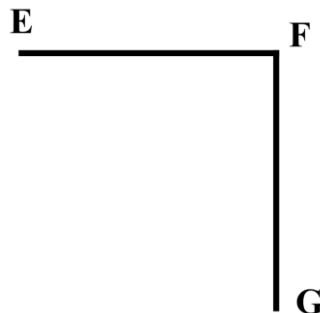
Congruence

Congruent Segments



4. **Given:** $\overline{EF} \cong \overline{FG}$, $EF = 6$

Find: FG



Unit 2 – Day 4 – Linear Measure – Part II

Mixed Review: Solve for x

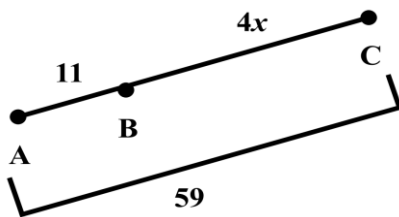
a. $3x - 12 = 41$

b. $7m + 6 - 2m = 16$

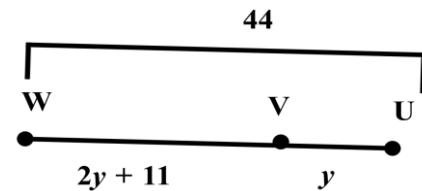
c. $15 - 3y = 4y - 6$

Write the Segment Addition Postulate for each example and then find the value of each variable (or segment measure).

1.



d.



3. If $MO = 32$, find the value of each of the following.

I. $x = \underline{\hspace{2cm}}$

II. $MN = \underline{\hspace{2cm}}$

III. $NO = \underline{\hspace{2cm}}$

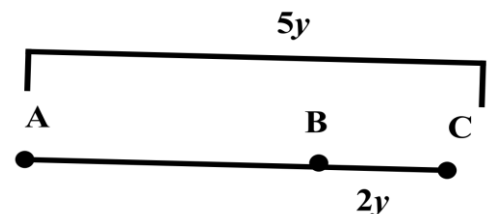


e. If $AB = 15$, find the value of each of the following.

I. $y = \underline{\hspace{2cm}}$

II. $AC = \underline{\hspace{2cm}}$

III. $BC = \underline{\hspace{2cm}}$



4. Suppose J is between H and K. Find the length of each segment.

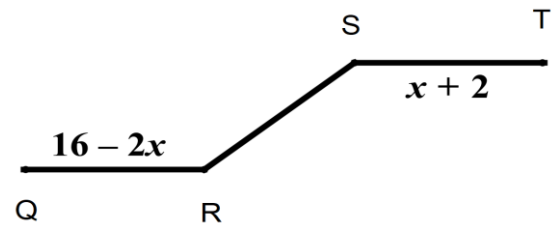
$$HJ = 2x + 4$$

$$JK = 3x + 3$$

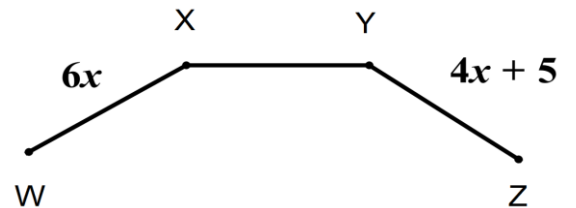
$$KH = 22$$

f. Suppose M is between L and N. $ML = 6x + 20$, $MN = 150 - 20x$, and $LN = 100$. Find the length of each segment.

5. **Given:** $\overline{ST} \cong \overline{SR}$, $\overline{QR} \cong \overline{SR}$ **Solve for x .**



g. **Given:** $\overline{XY} \cong \overline{YZ}$, $\overline{WX} \cong \overline{XY}$, **find XY**



8. In the diagram below, $AE = 40$, $AB = BC$, $BC = 8$, and $CD = DE$.



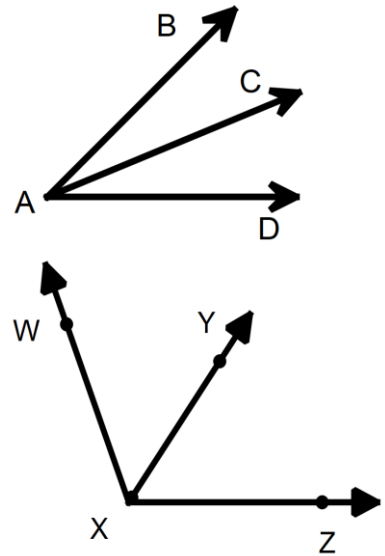
Which of the following are true?

- A. $AC = CD$
- B. $AB = BC + BC$
- C. $BD = BC + CD$
- D. $CE = 2 \cdot CD$
- E. $AE = AC + CD + DE$


Unit 2 – Day 5 – Angle Addition Postulate – Part I

Objectives: SWBAT apply the AAP to solve for missing angles & variables.

Angle Addition Postulate:

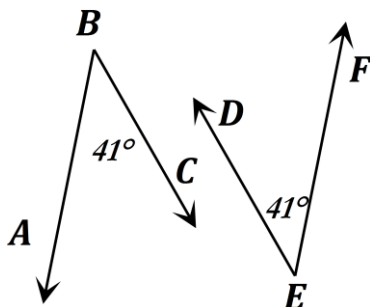


Congruent Angles

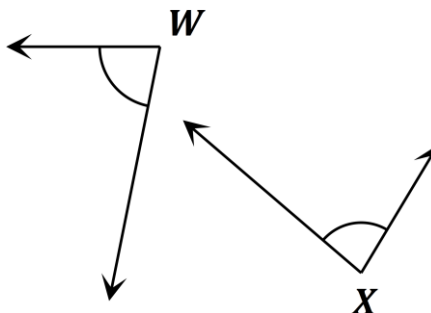
| Congruence | Equal Measure |
|---|-------------------------|
| | |
| When do I write it with a \cong | When do I write it as = |
|  | |

Are the following angles congruent? If they are state why, write it in both notations.

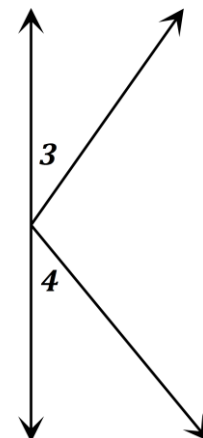
1.



2.

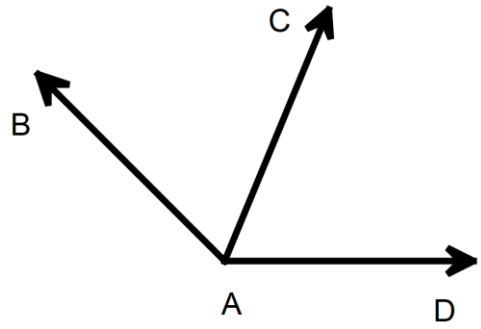


a.

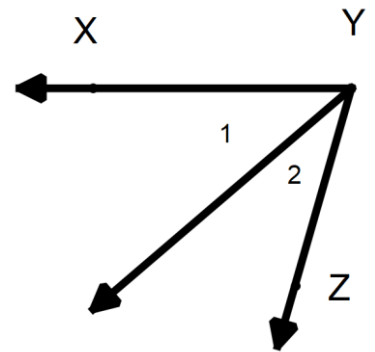


Write the Angle Addition Postulate, and then find the following.

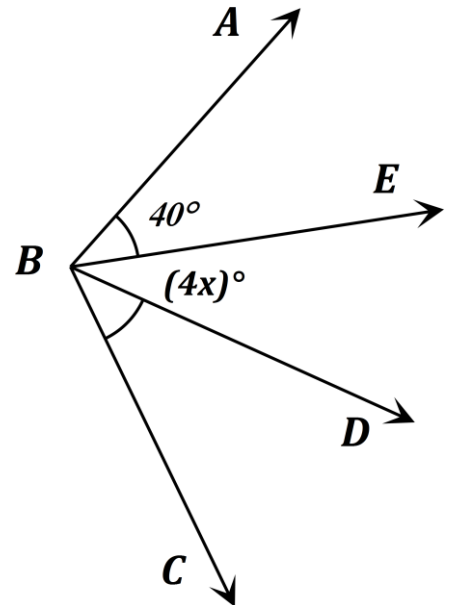
- 3.** If $m\angle CAD = 72^\circ$ and $m\angle BAC = 63^\circ$, find the $m\angle BAD$.



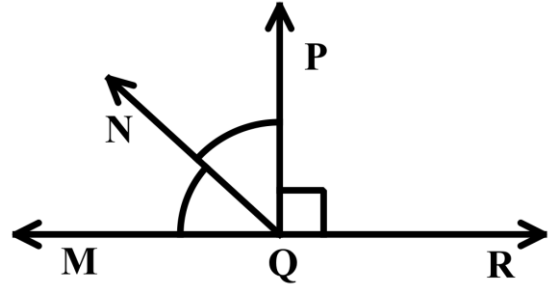
- c.** If $m\angle 1 = 22^\circ$ and $m\angle XYZ = 86^\circ$, find the $m\angle 2$.



- 4.** Given that $m\angle ABC = 120^\circ$, find $m\angle CBD$ and $m\angle CBE$.



- d. Given that $m\angle MQR = 180^\circ$, find $m\angle MQN$ and $m\angle NQP$.

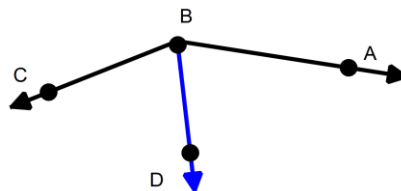


5. Let D be in the interior of $\angle ABC$. $m\angle ABD = 3y + 6$, $m\angle DBC = 4y + 2$, and $m\angle ABC = 78$. Find the value of y , and $m\angle ABD$.

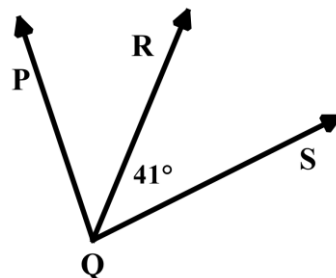
- e. If $m\angle EFH = 35$ and $m\angle HFG = 40$, find $m\angle EFG$.

Unit 2 – Day 6 – Angle Bisectors

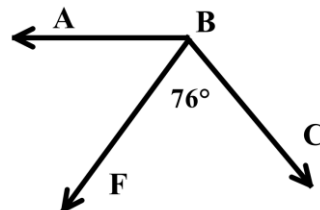
Angle Bisector



1. \overrightarrow{QR} is the angle bisector of $\angle PQS$. Find all the angle measures not given.

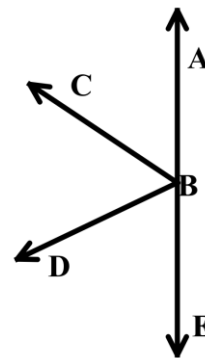


- a. \overrightarrow{BF} is the angle bisector of $\angle ABC$. Find all the angle measures not given.



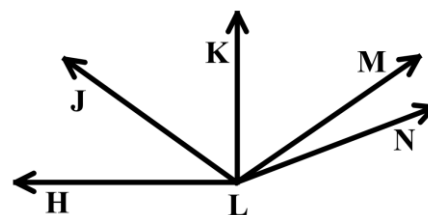
2. In the Figure, \overrightarrow{BD} bisects $\angle CBE$. Find x and $m\angle CBD$.

Given: $m\angle CBD = 56^\circ$, $m\angle DBE = (4x)^\circ$



- b. In the Figure, \overrightarrow{LK} bisects $\angle JLM$. Find $m\angle JLK$ and $m\angle MLJ$

Given: $m\angle JLK = (4x + 15)^\circ$, $m\angle KLM = (6x - 5)^\circ$



Unit 2 – Day 7 – Segment Bisectors

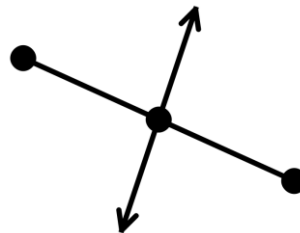
Mixed Review: Solve for x by factoring.

1. $x^2 - x = 12$

2. $x^2 + 11x = 42$

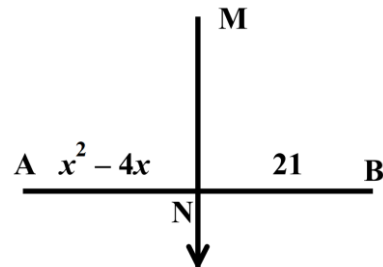
c. $x^2 - 8x = 20$

Segment Bisector

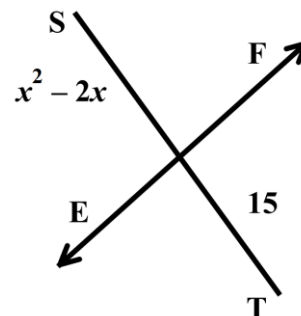


Can distance be a negative number? Explain why or why not/ _____

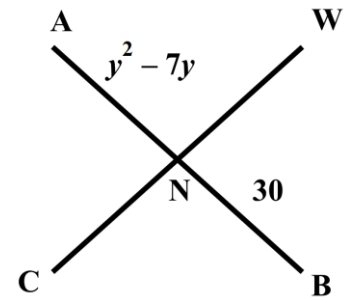
3. \overrightarrow{MN} is a segment bisector of \overline{AB} . Solve for x .



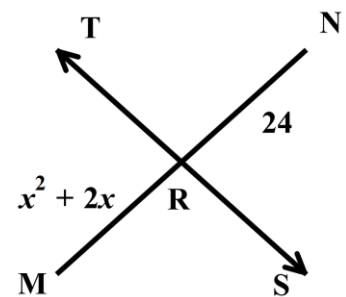
c. \overrightarrow{EF} is a segment bisector of \overline{ST} . Solve for x .



4. What value of y would make \overline{CW} a segment bisector of \overline{AB}

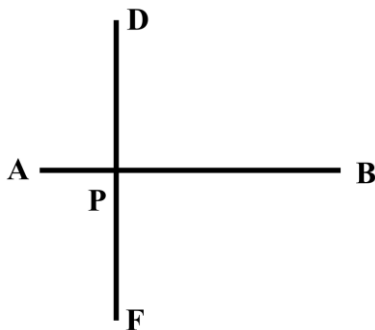


d) What value of x would make \overline{TS} a segment bisector of \overline{MN}



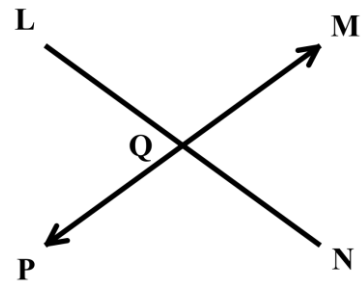
5. **Given:** that \overline{AB} is a bisector of \overline{DF}
 $DP = x^2 + 3x$
 $PF = 7x + 21$

Find: length of DF .



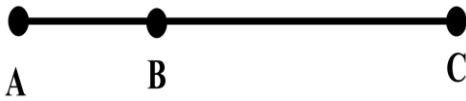
e. **Given:** that \overrightarrow{PM} is a bisector of \overline{LN}
 $LQ = x^2 + 7x$
 $QN = 5x + 48$

Find: length of NQ .

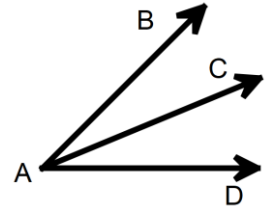


Unit 2 – Day 8 – Putting It All Together is Quadratics

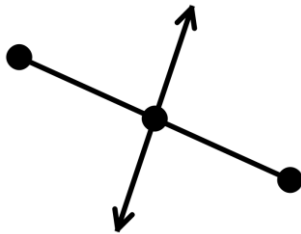
Segment Addition Postulate



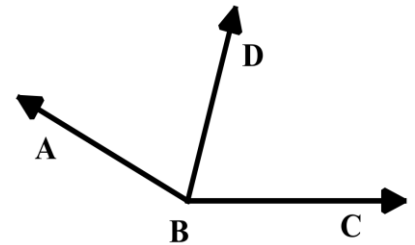
Angle Addition Postulate:



Segment Bisector



Angle Bisector



One of the most important tools used in Geometry is to _____ when you don't have one.

1. Given the information below, find AC .
 B is between A and C
 $AB = 2x - 8$
 $AC = 4x + 16$
 $BC = 3x - 6$

- a) Given the information below, find XY
 Y is between X and Z
 $YZ = 2w + 1$
 $ZX = 7w - 16$
 $XY = 3w + 11$

2. **Given:** $m\angle ABC = (5x - 12)^\circ$
 $m\angle ABW = (3x)^\circ$
 $m\angle WBC = (x)^\circ$
 W is in the interior of $\angle ABC$

Find: $m\angle ABW$

- b) **Given:** H is in the interior of $\angle MNP$
 $m\angle MNP = 150^\circ$
 $m\angle HNP = (3x - 9)^\circ$
 $m\angle MNH = (10x - 36)^\circ$

Find: $m\angle MNH$

3. Given: C is in the interior of $\angle BAD$

$$m\angle CAD = (x^2)^\circ$$

$$m\angle CAB = (6x + 9)^\circ$$

$$m\angle DAB = 81^\circ$$

Find: x and $m\angle CAB$

c. Given: Q is in the interior of $\angle MNP$

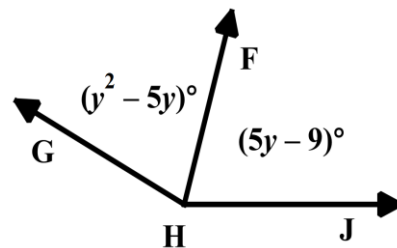
$$m\angle MNQ = (x^2 - 8)^\circ$$

$$m\angle QNP = (6x - 1)^\circ$$

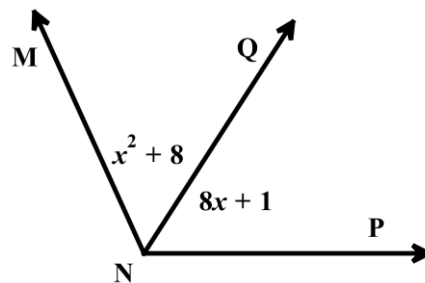
$$m\angle MNP = 82^\circ$$

Find: x and $m\angle QNP$

4. \overrightarrow{HF} bisects $\angle GHJ$, find $m\angle GHJ$



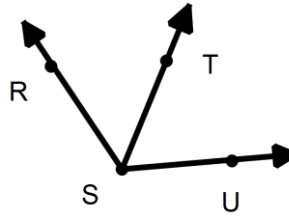
d. \overrightarrow{NQ} bisects $\angle MNP$, find $m\angle MNQ$



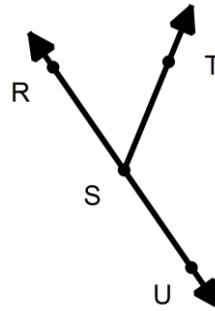
Unit 2 – Day 9 – Angle Relationships

Objectives: SWBAT identify and use special pairs of angles.
SWBAT identify perpendicular lines.

Adjacent Angles

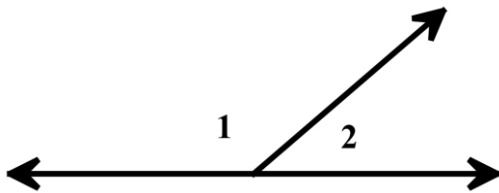


Linear Pair

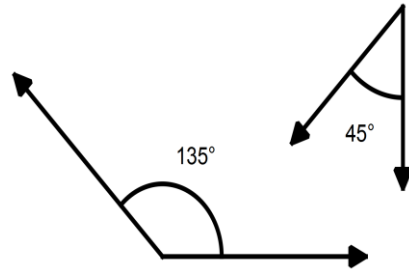


Supplementary Angle

Supplementary Adjacent

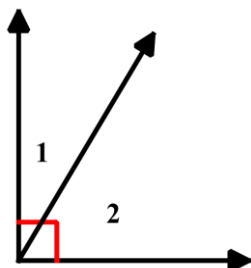


Supplementary Nonadjacent

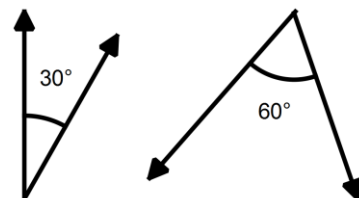


Complementary Angles

Complementary Adjacent



Complementary Nonadjacent



Use the diagram on the right.

1. Are $\angle 3$ and $\angle 5$ adjacent angles?

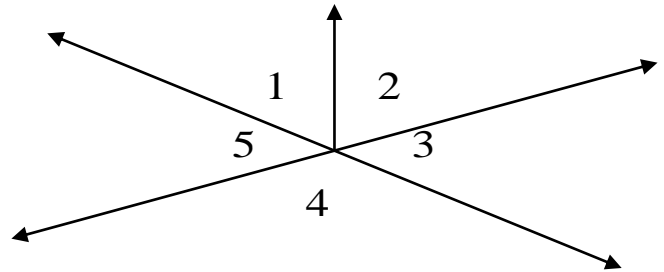
a. Are $\angle 1$ and $\angle 2$ adjacent angles?

2. Are $\angle 1$ and $\angle 2$ a linear pair?

b. Are $\angle 3$ and $\angle 4$ a linear pair?

3. If $m\angle 3 = 45^\circ$ then $m\angle 4 =$ _____.

c. If $m\angle 4 = 137^\circ$ then $m\angle 5 =$ _____.



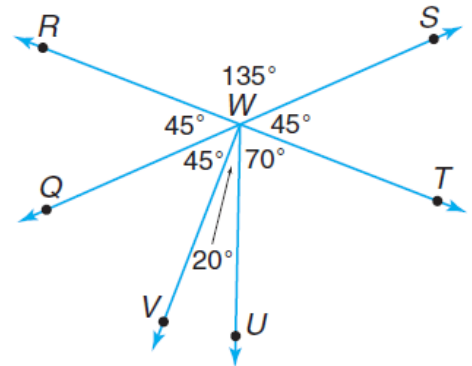
For the following, use the diagram to the right.

d. Name two pairs of complementary angles

e. What kind of angles are $\angle RWS$ and $\angle TWS$?

f. What angle is supplementary $\angle TWU$?

g. Are $\angle RWV$ and $\angle VWU$ a linear pair? Explain why or why not.



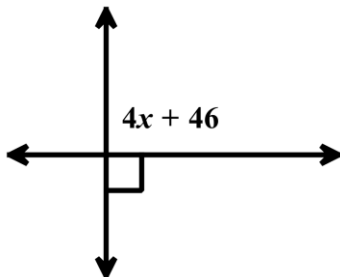
4. Given that $\angle A$ and $\angle B$ are complementary with $m\angle A = 3x + 5$ and $m\angle B = 7x + 15$. Solve for x and find the measures of $\angle A$.

h. Given that $\angle D$ and $\angle E$ are complementary with $m\angle D = 2x + 9$ and $m\angle B = 4x - 15$. Solve for x and find the measures of $\angle D$.

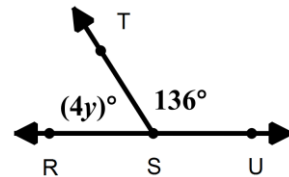
7. Given that $\angle E$ is supp. to $\angle F$. If $m\angle E = 15x + 16$ and $m\angle F = 4x + 12$, solve for x and find the measures of $\angle F$

i. Given that $\angle C$ is supp. to $\angle D$. If $m\angle C = 9x - 88$ and $m\angle D = 7x - 20$, solve for x and find the measures of $\angle C$

8. Find the value of x



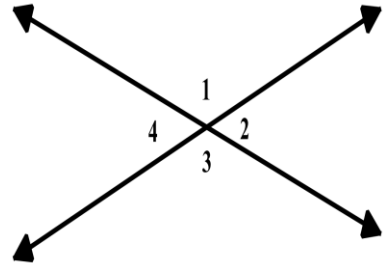
j. Find the value of y .



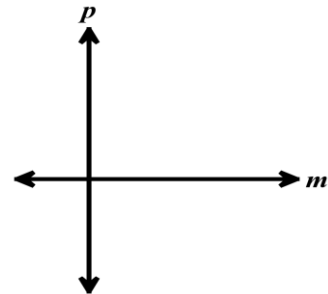
Unit 2 – Day 10 – Vertical Angles and Perpendicular Lines

Objectives: SWBAT identify and use special pairs of angles.
SWBAT identify perpendicular lines.

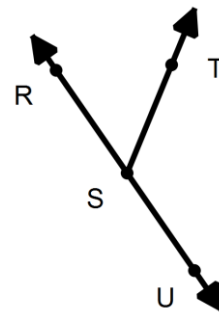
Vertical Angles



Perpendicular Lines

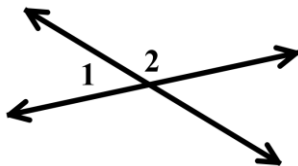


Linear Pair

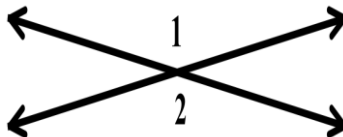


Determine $\angle 1$ and $\angle 2$ are linear pair, vertical angles, or neither.

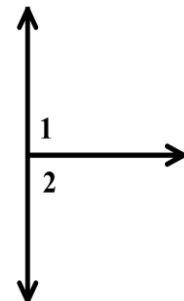
1.



2.

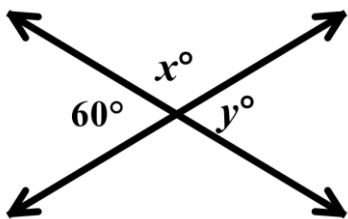


a.

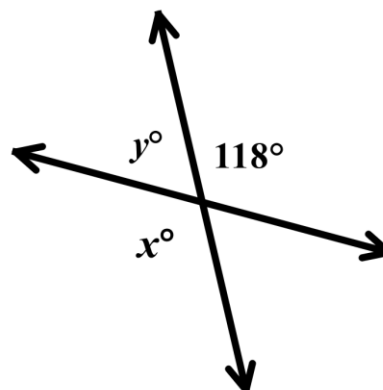


Solve for the following variables.

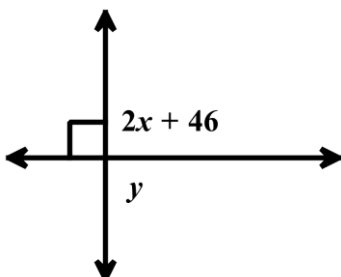
3.



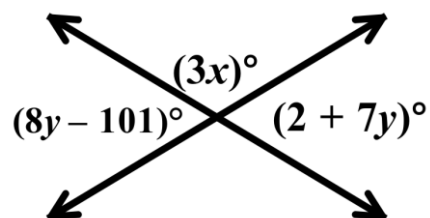
b.



4.



c.



5. Solve for x and y . Then find the angle measures.

$$x = \underline{\hspace{2cm}}$$

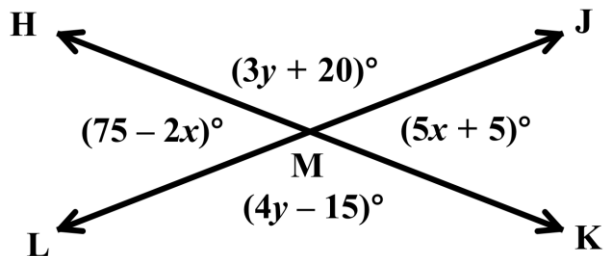
$$y = \underline{\hspace{2cm}}$$

$$m\angle HMJ = \underline{\hspace{2cm}}$$

$$m\angle LMK = \underline{\hspace{2cm}}$$

$$m\angle HML = \underline{\hspace{2cm}}$$

$$m\angle JMK = \underline{\hspace{2cm}}$$



d. Solve for x and y . Then find the angle measures.

$$x = \underline{\hspace{2cm}}$$

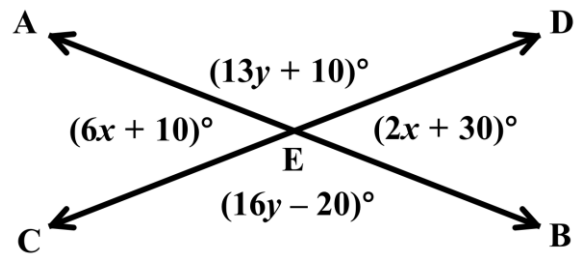
$$y = \underline{\hspace{2cm}}$$

$$m\angle AED = \underline{\hspace{2cm}}$$

$$m\angle AEC = \underline{\hspace{2cm}}$$

$$m\angle CEB = \underline{\hspace{2cm}}$$

$$m\angle DEB = \underline{\hspace{2cm}}$$



6. Solve for x , y , and z .

