

Name:

Date:

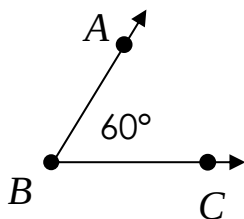
Topic:

Class:

Main Ideas/Questions

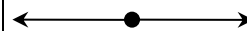
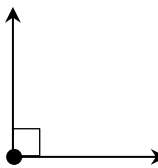
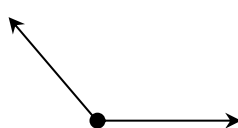
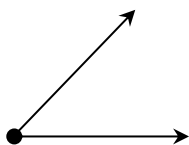
Notes

Angles

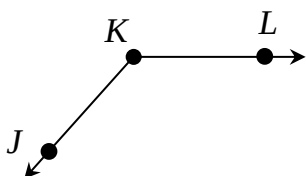


- An angle is formed by two _____ with a common endpoint.
- This common endpoint is called the _____.
- The rays are called the _____.
- Name an angle using _____ letters. The middle letter must always represent the vertex!
- Use a single letter if there is only one angle located at the vertex.
- When referring to the measure of an angle, use a lowercase m .
Example: $m\angle ABC = 60^\circ$

Types of Angles

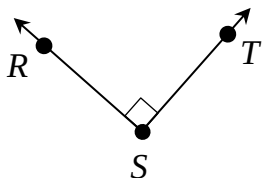


Example 1



- Name the vertex of the angle. _____
- Name the sides of the angle. _____
- Give three ways to name the angle.
_____, _____, _____
- Classify the angle. _____

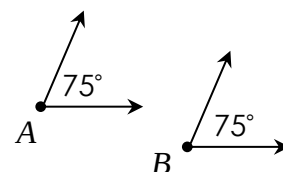
Example 2

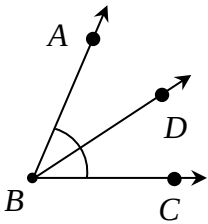
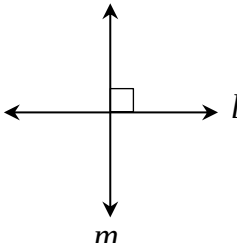
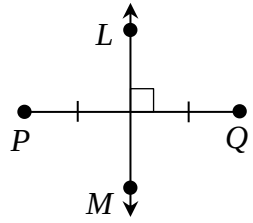
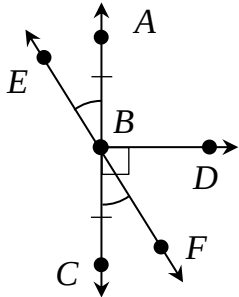
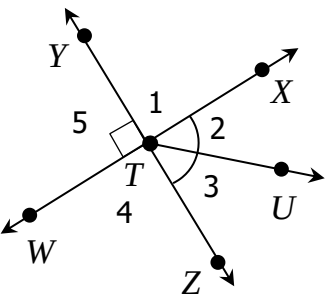


- Name the vertex of the angle. _____
- Name the sides of the angle. _____
- Give three ways to name the angle.
_____, _____, _____
- Classify the angle. _____

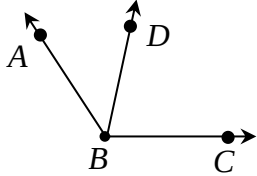
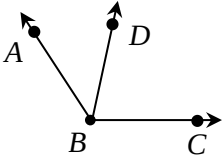
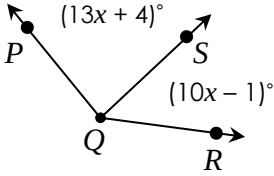
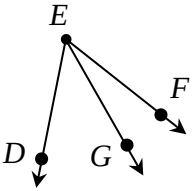
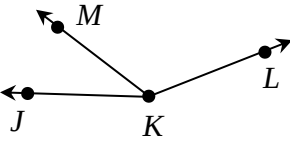
Congruent Angles

If _____, then the angles are congruent. This is written as _____.

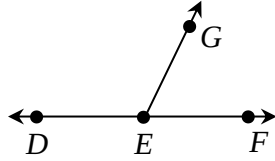


Angle Bisector	A _____ that divides an angle into _____. In the diagram to the right, _____ is an angle bisector, therefore, _____.	
Perpendicular Lines	Two lines that _____ at a _____. The symbol for perpendicular is _____. In the diagram to the right, _____.	
Perpendicular Bisector	A line, segment, or ray _____ to a segment at its _____. In the diagram to the right, _____ is the perpendicular bisector to _____.	
Example 3 	a) Write another name for $\angle CBF$. _____ b) Name the sides of $\angle EBD$. _____ c) Classify $\angle ABC$. _____ d) Give an example of an obtuse angle. _____ e) Name two congruent angles. _____ f) Name a perpendicular bisector. _____	
Example 4 	a) Name the vertex of $\angle 2$. _____ b) Name the sides of $\angle 4$. _____ c) Write another name for $\angle 3$. _____ d) Write another name for $\angle 1$. _____ e) Classify $\angle YTW$. _____ f) Classify $\angle YTU$. _____ g) Classify $\angle XTU$. _____ h) Classify $\angle WTX$. _____ i) Name two perpendicular lines. _____ j) Name an angle bisector. _____	

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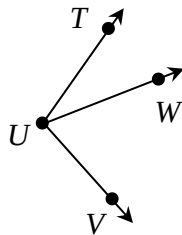
Main Ideas/Questions	Notes/Examples	
ANGLE ADDITION Postulate Examples	If D is in the interior of $\angle ABC$, then _____	
		
	Use the diagram below to answer questions 1 and 2.	1. If $m\angle ABD = 48^\circ$ and $m\angle DBC = 78^\circ$, find $m\angle ABC$.
		2. If $m\angle DBC = 74^\circ$ and $m\angle ABC = 119^\circ$, find $m\angle ABD$.
	3. If $m\angle PQR = 141^\circ$, find each measure.	
		$x = \underline{\hspace{2cm}}$ $m\angle PQS = \underline{\hspace{2cm}}$ $m\angle SQR = \underline{\hspace{2cm}}$
	4. If $m\angle DEF = (7x + 4)^\circ$, $m\angle DEG = (5x + 1)^\circ$, and $m\angle GEF = 23^\circ$, find each measure.	
		$x = \underline{\hspace{2cm}}$ $m\angle DEG = \underline{\hspace{2cm}}$ $m\angle DEF = \underline{\hspace{2cm}}$
	5. If $m\angle JKM = 43^\circ$, $m\angle MKL = (8x - 20)^\circ$, and $m\angle JKL = (10x - 11)^\circ$, find each measure.	
		$x = \underline{\hspace{2cm}}$ $m\angle MKL = \underline{\hspace{2cm}}$ $m\angle JKL = \underline{\hspace{2cm}}$

6. If $\angle DEF$ is a straight angle, $m\angle DEG = (23x - 3)^\circ$, and $m\angle GEF = (12x + 8)^\circ$, find each measure.



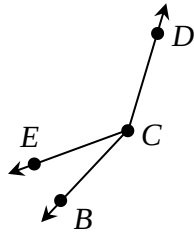
$$\begin{aligned} x &= \underline{\hspace{2cm}} \\ m\angle DEG &= \underline{\hspace{2cm}} \\ m\angle GEF &= \underline{\hspace{2cm}} \\ m\angle DEF &= \underline{\hspace{2cm}} \end{aligned}$$

7. If $m\angle TUV = (5x + 3)^\circ$, $m\angle WUV = (10x - 5)^\circ$, and $m\angle TUV = (17x - 16)^\circ$, find each measure.

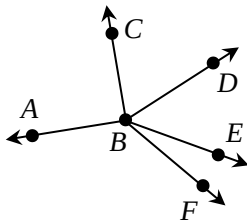


$$\begin{aligned} x &= \underline{\hspace{2cm}} \\ m\angle TUV &= \underline{\hspace{2cm}} \\ m\angle WUV &= \underline{\hspace{2cm}} \\ m\angle TUV &= \underline{\hspace{2cm}} \end{aligned}$$

8. If $m\angle ECD$ is six less than five times $m\angle BCE$, and $m\angle BCD = 162^\circ$, find each measure.



$$\begin{aligned} m\angle BCE &= \underline{\hspace{2cm}} \\ m\angle ECD &= \underline{\hspace{2cm}} \end{aligned}$$



Use the diagram to the left to answer questions 9 and 10.

9. If $m\angle ABF = (6x + 26)^\circ$, $m\angle EBF = (2x - 9)^\circ$, and $m\angle ABE = (11x - 31)^\circ$, find $m\angle ABF$.

10. If $\overline{BD}$ bisects $\angle CBE$, $\overline{BC} \perp \overline{BA}$, $m\angle CBD = (3x + 25)^\circ$, and $m\angle DBE = (7x - 19)^\circ$, find $m\angle ABD$.

VERTICAL ANGLES

Two angles **across** from each other on intersecting lines. They are always **congruent**!

Example:

ADJACENT ANGLES

Two angles that are **next to** each other and share a common side.

Example:

LINEAR PAIR

Two angles that are **adjacent** and **supplementary**. They form a **straight line**!

Example:

ANGLE Relationships

COMPLEMENTARY ANGLES

Any two angles whose **sum is 90°**

Example:

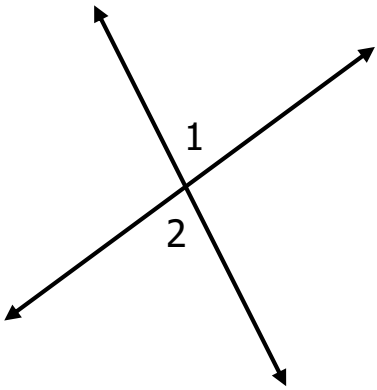
SUPPLEMENTARY ANGLES

Any two angles whose **sum is 180°**

Example:

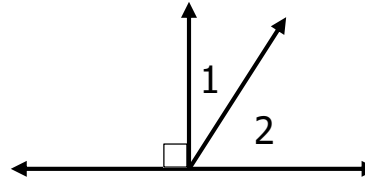
Identifying Types of Angles: Check all relationships between $\angle 1$ and $\angle 2$.

1



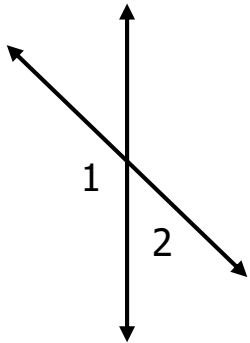
- ☐ Adjacent
- ☐ Vertical
- ☐ Complementary
- ☐ Supplementary
- ☐ Linear Pair

2



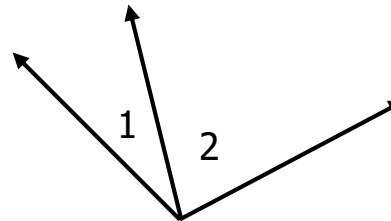
- ☐ Adjacent
- ☐ Vertical
- ☐ Complementary
- ☐ Supplementary
- ☐ Linear Pair

3



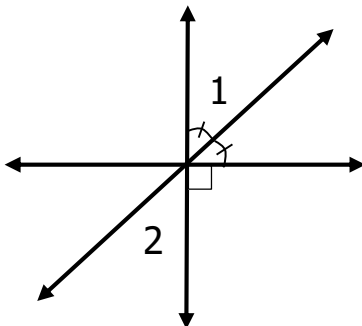
- ☐ Adjacent
- ☐ Vertical
- ☐ Complementary
- ☐ Supplementary
- ☐ Linear Pair

4



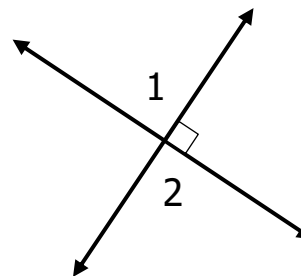
- ☐ Adjacent
- ☐ Vertical
- ☐ Complementary
- ☐ Supplementary
- ☐ Linear Pair

5



- ☐ Adjacent
- ☐ Vertical
- ☐ Complementary
- ☐ Supplementary
- ☐ Linear Pair

6

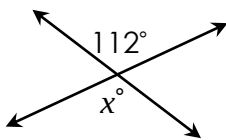


- ☐ Adjacent
- ☐ Vertical
- ☐ Complementary
- ☐ Supplementary
- ☐ Linear Pair

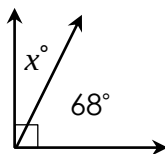
Using ANGLE RELATIONSHIPS to find ANGLE MEASURES

Directions: Find the missing measures in each figure. Keep the angle relationships in mind.

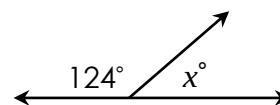
1.



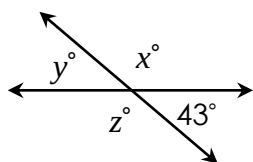
2.



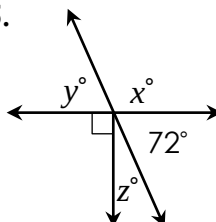
3.



4.



5.



6. $\angle 1$ and $\angle 2$ are vertical angles. If the measure of $\angle 2$ is 105° , find the measure of $\angle 1$.

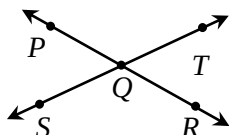
7. $\angle A$ and $\angle B$ are complementary angles. If the measure of $\angle A$ is 42° , find the measure of $\angle B$.

8. $\angle P$ and $\angle Q$ are supplementary angles. If the measure of $\angle Q$ is 64° , find the measure of $\angle P$.

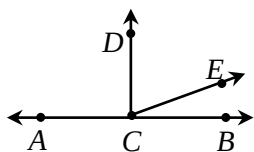
9. $\angle 1$ and $\angle 2$ form a linear pair. If the measure of $\angle 1$ is 113° , find the measure of $\angle 2$.

USING ALGEBRA

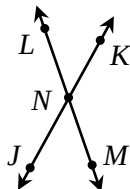
10. If $m\angle PQT = (3x + 47)^\circ$ and $m\angle SQR = (6x - 25)^\circ$, find the measure of $\angle SQR$.



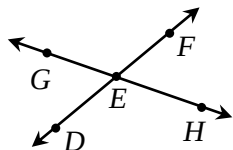
11. If $\overline{AB} \perp \overline{CD}$, $m\angle DCE = (7x + 2)^\circ$ and $m\angle ECB = (x + 8)^\circ$, find the measure of $\angle DCE$.



12. If $m\angle KNM = (8x - 5)^\circ$ and $m\angle MNJ = (4x - 19)^\circ$, find the measure of $\angle KNM$.



13. If $m\angle DEG = (5x - 4)^\circ$, $m\angle GEF = (7x - 8)^\circ$, $m\angle DEH = (9y + 5)^\circ$, find the values of x and y .



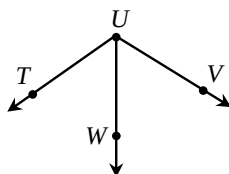
14. $\angle R$ and $\angle S$ are complementary angles. If $m\angle R = (12x - 3)^\circ$ and $m\angle S = (7x - 2)^\circ$, find $m\angle R$.

15. $\angle P$ and $\angle Q$ are supplementary angles. If $m\angle P = (4x + 1)^\circ$ and $m\angle Q = (9x - 3)^\circ$, find $m\angle Q$.

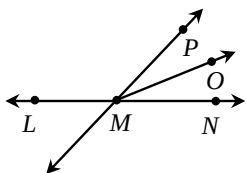
16. $\angle 1$ and $\angle 2$ form a linear pair. The measure of $\angle 2$ is six more than twice the measure of $\angle 1$. Find $m\angle 2$.

17. $\angle J$ and $\angle K$ are complementary angles. The measure of $\angle J$ is 18 less than the measure of $\angle K$. Find the measure of each angle.

18. If $\overline{UW}$ bisects $\angle TUV$, $m\angle TUV = (13x - 5)^\circ$ and $m\angle WUV = (7x + 31)^\circ$, find the value of x .



19. If $\overline{MO}$ bisects $\angle PMN$, $m\angle PMN = 74^\circ$ and $m\angle OMN = (2x + 7)^\circ$, find the value of x .



20. If $\overline{EF}$ bisects $\angle CEB$, $m\angle CEF = (7x + 21)^\circ$ and $m\angle FEB = (10x - 3)^\circ$, find the measure of $\angle DEB$.

