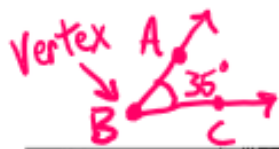


It is important to know and understand the highlighted terms for this unit.

- **Adjacent Angles:** Angles in the same plane that have a common vertex and a common side, but no common interior points.
- **Alternate Exterior Angles:** Alternate exterior angles are pairs of angles formed when a third line (a transversal) crosses two other lines. These angles are on opposite sides of the transversal and are outside the other two lines. When the two other lines are parallel, the alternate exterior angles are equal.
- **Alternate Interior Angles:** Alternate interior angles are pairs of angles formed when a third line (a transversal) crosses two other lines. These angles are on opposite sides of the transversal and are in between the other two lines. When the two other lines are parallel, the alternate interior angles are equal.
- **Angle:** Angles are created by two distinct rays that share a common endpoint (also known as a vertex). $\angle ABC$ or $\angle B$ denote angles with vertex B.
- **Bisector:** A bisector divides a segment or angle into two equal parts.
- **Centroid:** The point of concurrency of the medians of a triangle.
- **Circumcenter:** The point of concurrency of the perpendicular bisectors of the sides of a triangle.
- **Coincidental:** Two equivalent linear equations overlap when graphed.
- **Complementary Angles:** Two angles whose sum is 90 degrees.
- **Congruent:** Having the same size, shape and measure. Two figures are congruent if all of their corresponding measures are equal.
- **Congruent Figures:** Figures that have the same size and shape.
- **Corresponding Angles:** Angles that have the same relative positions in geometric figures.
- **Corresponding Sides:** Sides that have the same relative positions in geometric figures.
- **Dilation:** Transformation that changes the size of a figure, but not the shape.
- **Endpoints:** The points at an end of a line segment
- **Equiangular:** The property of a polygon whose angles are all congruent.
- **Equilateral:** The property of a polygon whose sides are all congruent.
- **Exterior Angle of a Polygon:** an angle that forms a linear pair with one of the angles of the polygon.
- **Incenter:** The point of concurrency of the bisectors of the angles of a triangle.
- **Intersecting Lines:** Two lines in a plane that cross each other. Unless two lines are coincidental, parallel, or skew, they will intersect at one point.
- **Intersection:** The point at which two or more lines intersect or cross.
- **Line:** One of the basic undefined terms of geometry. Traditionally thought of as a set of points that has no thickness but its length goes on forever in two opposite directions. \overline{AB} denotes a line that passes through point A and B.
- **Line Segment or Segment:** The part of a line between two points on the line. \overline{AB} denotes a line segment between the points A and B.
- **Linear Pair:** Adjacent, supplementary angles. Excluding their common side, a linear pair forms a straight line.

- **Measure of each Interior Angle of a Regular n-gon:** $\frac{180^\circ(n-2)}{n}$
- **Orthocenter:** The point of concurrency of the altitudes of a triangle.
- **Parallel Lines:** Two lines are parallel if they lie in the same plane and they do not intersect.
- **Perpendicular Lines:** Two lines are perpendicular if they intersect at a right angle.
- **Plane:** One of the basic undefined terms of geometry. Traditionally thought of as going on forever in all directions (in two-dimensions) and is flat (i.e., it has no thickness).
- **Point:** One of the basic undefined terms of geometry. Traditionally thought of as having no length, width, or thickness, and often a dot is used to represent it.
- **Proportion:** An equation which states that two ratios are equal.
- **Ratio:** Comparison of two quantities by division and may be written as r/s , $r:s$, or r to s .
- **Ray:** A ray begins at a point and goes on forever in one direction.
- **Reflection:** A transformation that "flips" a figure over a line of reflection
- **Reflection Line:** A line that is the perpendicular bisector of the segment with endpoints at a pre-image point and the image of that point after a reflection.
- **Regular Polygon:** A polygon that is both equilateral and equiangular.
- **Remote Interior Angles of a Triangle:** the two angles non-adjacent to the exterior angle.
- **Rotation:** A transformation that turns a figure about a fixed point through a given angle and a given direction.
- **Same-Side Interior Angles:** Pairs of angles formed when a third line (a transversal) crosses two other lines. These angles are on the same side of the transversal and are between the other two lines. When the two other lines are parallel, same-side interior angles are supplementary.
- **Same-Side Exterior Angles:** Pairs of angles formed when a third line (a transversal) crosses two other lines. These angles are on the same side of the transversal and are outside the other two lines. When the two other lines are parallel, same-side exterior angles are supplementary.
- **Scale Factor:** The ratio of any two corresponding lengths of the sides of two similar figures.
- **Similar Figures:** Figures that have the same shape but not necessarily the same size.
- **Skew Lines:** Two lines that do not lie in the same plane (therefore, they cannot be parallel or intersect).
- **Sum of the Measures of the Interior Angles of a Convex Polygon:** $180^\circ(n - 2)$.
- **Supplementary Angles:** Two angles whose sum is 180 degrees.
- **Transformation:** The mapping, or movement, of all the points of a figure in a plane according to a common operation.
- **Translation:** A transformation that "slides" each point of a figure the same distance in the same direction
- **Transversal:** A line that crosses two or more lines.
- **Vertical Angles:** Two nonadjacent angles formed by intersecting lines or segments. Also called opposite angles.



Warm Up

Solve for x.

1. $8x - 8 - 6x = 20$
 $2x - 8 = 20$
 $2x = 28$
 $x = 14$

2. $\frac{2}{3}x + 2 = 8$
 $\frac{2}{3}x = 6$
 $x = 9$

3. $11x - 21 = 17 - 8x$
 $19x = 38$
 $x = 2$

Symbols to Know

Angle $\angle B$ $\angle CBA$
 Degree 35°
 Right Angle 90°
 Perpendicular

Segment AB \overline{AB}
 Ray CD
 Line EF \overleftrightarrow{EF}
 Measure $m\angle ABC$

Perpendicular symbols on lines l and m .

Name this angle 4 different ways.

$\angle 2$
 $\angle CAT$
 $\angle TAC$
 $\angle A$

Vertex in middle

Name the ways can you name $\angle 3$?
 $\angle 3$ $\angle MHA$ $\angle AHM$

Name the ways can you name $\angle 4$?
 $\angle 4$ $\angle AHT$ $\angle THA$

Name the ways can you name $\angle MHT$?
 $\angle THM$

Name the angle 4 ways.

$\angle LMN$
 $\angle NML$
 $\angle 7$
 $\angle M$

How do you name the **bolded** side?

\overline{MA} or \overline{AM}

What side is opposite the bolded side?
 \overline{HT} or \overline{TH}

2 section Angle Bisector

Cuts an angle in to two
equal angles

Solve for x.

$$2x + 40 = 5x + 16$$

$$40 = 3x + 16$$

$$24 = 3x$$

$$8 = x$$

7

Linear Pair

Two angles that are side-by-side, share a common vertex, ~~share a common~~ line, & create a line.

Solve for x.

Equation:
 $x + 62 = 180$
 $-62 \quad -62$

$$x = 118^\circ$$

8

The following angles are linear pairs.
Solve for x.

$$x + x + 104 = 180$$

$$2x + 104 = 180$$

$$2x = 76$$

$$x = 38^\circ$$

9

Supplementary Angles

Two angles that add up to 180.

Equation:
 $x + 82 = 180$

$$x = 98^\circ$$

Solve for x if the following 2 angles are supplementary.

10

What type of angles are shown below?

Solve for x.

$$3x + 1 + 5x - 5 = 180$$

$$8x - 4 = 180$$

$$8x = 184$$

$$x = 23$$

11

$\angle 13$ and $\angle 14$ are supplementary angles
 180°

$m\angle 13 = 47^\circ$. Find $m\angle 14$.

$$47 + m\angle 14 = 180$$

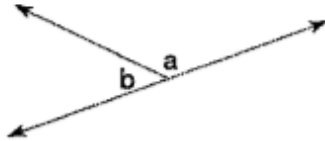
$$m\angle 14 = 133^\circ$$

12

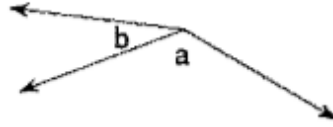
Name: _____ Date: _____

Name the angle relationship: linear pair, vertical angles, or adjacent.

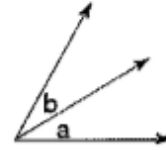
1.



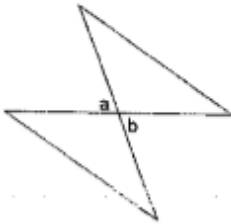
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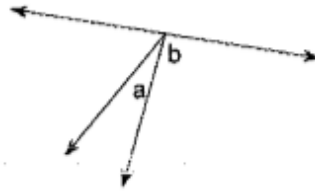
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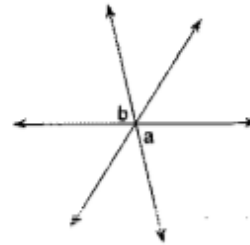
4.



5.



6.



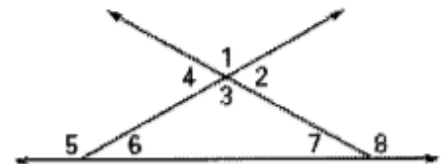
Use the diagram to tell whether the angles are vertical angles, a linear pair, or neither.

7. $\angle 1$ and $\angle 2$ _____ 8. $\angle 1$ and $\angle 3$ _____

9. $\angle 1$ and $\angle 4$ _____ 10. $\angle 1$ and $\angle 5$ _____

11. $\angle 1$ and $\angle 6$ _____ 12. $\angle 1$ and $\angle 7$ _____

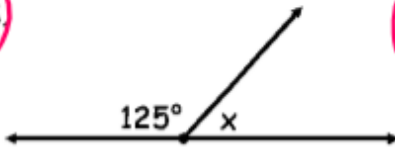
13. $\angle 1$ and $\angle 8$ _____ 14. $\angle 2$ and $\angle 4$ _____



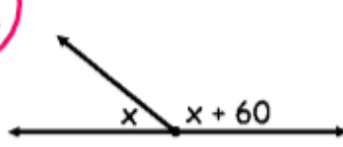
Home work

Solve for x.

15.



16.



17.

