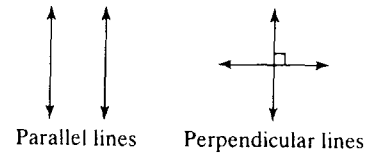


Study Guide - Sections 7-1 to 7-5

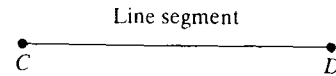
Reteaching 7-1

Lines and Planes

A plane is an infinite flat surface. A line is a series of points that extends in two opposite directions without end. Lines in a plane that never meet are called **parallel** lines. Lines that intersect to form a right angle (90°) are called **perpendicular** lines. Intersecting lines have exactly one common point.



A line segment is formed by two endpoints and all the points between them.

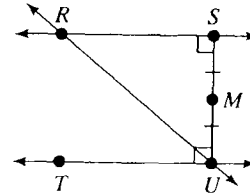


- Use the figure to name a line segment, a point, two intersecting lines, and a pair of parallel lines.

Two endpoints are S and U , so they form a line segment, \overline{SU} .

There are 5 points, R, S, M, U, T .

Intersecting lines have exactly one point in common. So, \overleftrightarrow{RU} and \overleftrightarrow{SU} are intersecting lines.



Line \overleftrightarrow{TU} never intersects line \overleftrightarrow{RS} , so \overleftrightarrow{TU} and \overleftrightarrow{RS} are parallel lines.

Reteaching 7-2

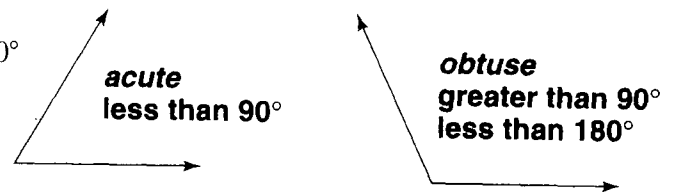
Measuring and Classifying Angles

An **angle** is made up of two rays (the *sides* of the angle) with a common endpoint (the *vertex* of the angle).

You can name this angle $\angle A$, $\angle BAC$, or $\angle CAB$.

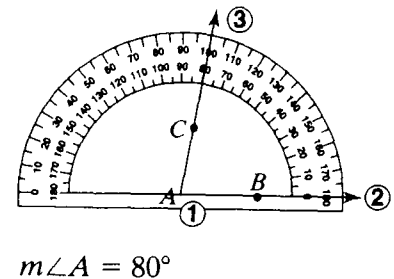
$\angle A$ is an **acute** angle because its measure is less than 90° . If an angle has a measure greater than 90° and less than 180° , it is an **obtuse** angle.

You can measure an angle using a protractor. Write the measure of $\angle A$ as $m\angle A$.



To measure an angle:

- Place the center point of your protractor on the vertex of the angle.
- Line up one side of the angle with zero on the protractor scale.
- Read the scale at the second side of the angle. Since $\angle A$ is an acute angle, read 80° and not 100° .

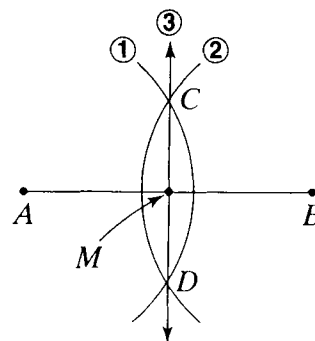


Reteaching 7-3

Constructing Bisectors

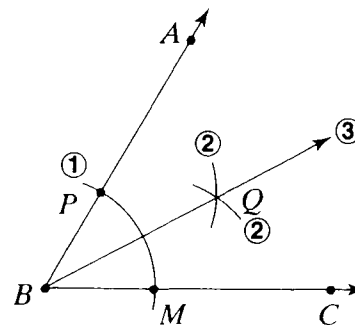
To bisect \overline{AB} :

- ① Open the compass more than half the length of \overline{AB} . With the compass tip on A , draw an arc.
- ② Without changing the opening, move the compass tip to B . Draw another arc.
- ③ Draw \overleftrightarrow{CD} through the intersections of the arcs. \overleftrightarrow{CD} is the bisector of \overline{AB} . Point M is the midpoint of \overline{AB} .



To bisect $\angle ABC$:

- ① Place the compass point on vertex B . Draw an arc intersecting the sides of the angle at points P and M .
- ② Place the compass tip on point M . Draw an arc in the interior of the angle. Keep the opening the same and place the compass tip on point P . Draw a second arc intersecting the first at point Q .
- ③ Draw \overleftrightarrow{BQ} . \overleftrightarrow{BQ} is the bisector of $\angle ABC$.



Reteaching 7-4

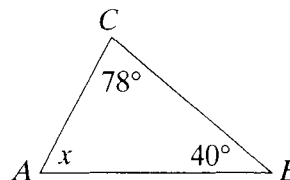
Triangles

Classifying Triangles by Angles		Classifying Triangles by Sides	
Acute triangle: three acute angles		Equilateral triangle: three congruent sides	
Right triangle: one right angle		Isosceles triangle: at least two congruent sides	
Obtuse triangle: one obtuse angle		Scalene triangle: no congruent sides	

The sum of the measures of the angles of a triangle is 180° .

Find the value of x in the triangle at the right.

$$\begin{aligned}
 x &= m\angle A \\
 m\angle A + 40^\circ + 78^\circ &= 180^\circ \\
 m\angle A + 118^\circ &= 180^\circ \\
 m\angle A &= 180^\circ - 118^\circ \\
 m\angle A &= 62^\circ \\
 x &= 62^\circ
 \end{aligned}$$

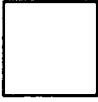
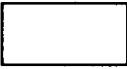

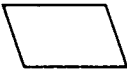



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Reteaching 7-5

You name polygons by the number of sides. A **quadrilateral** is a polygon with four sides. The table shows the names and properties of some special quadrilaterals.

Special Quadrilaterals

Quadrilateral	Figure	Only 1 Pair of Parallel Sides	2 Pairs of Parallel Sides	All Sides Must be Congruent	Opposite Sides Are Congruent	All Angles Must Be Right Angles
Square			✓	✓	✓	✓
Rectangle			✓		✓	✓
Rhombus			✓	✓	✓	
Parallelogram			✓		✓	
Trapezoid		✓				

Look at the rhombus. It is also a parallelogram, but the name rhombus is best because it gives the most information about the figure.

served.

MATH Course 2: Study Guide - 7-6 → 7-9 Sections

Name _____ Class _____ Date _____

Reteaching 7-6

Problem Solving: Draw a Diagram and Look for a Pattern

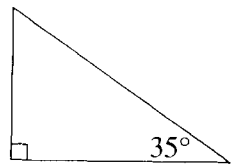
One acute angle of a right triangle is 35° . What is the measure of the other acute angle?

Read and Understand

What kind of triangle is given? *A right triangle is given.* What do you know about a right triangle? *It has one 90° angle and two acute angles.* What are you given? *You are given one acute angle that measures 35° .* What do you want to find? *You want to find the measure of the other acute angle.*

Plan and Solve

A good strategy for this problem is to draw a diagram. Show a right triangle with the acute angle labeled and the right angle marked.



Remember that the sum of the angle measures of a triangle is 180° . The diagram reminds you that the right angle measures 90° .

$$\begin{aligned} 180^\circ - (90^\circ + 35^\circ) &= 180^\circ - 125^\circ \\ &= 55^\circ \end{aligned}$$

The measure of the third angle is 55° .

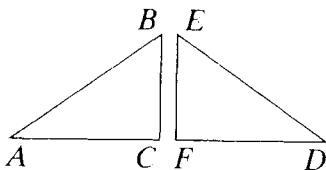
Look Back and Check

Check by adding: $55^\circ + 35^\circ + 90^\circ = 180^\circ$

Reteaching 7-7

Congruent Figures

Congruent polygons have congruent sides and angles. These are called the *corresponding parts* of the congruent figures.



$$\triangle ABC \cong \triangle DEF$$

Corresponding Angles	Corresponding Sides
$\angle A \cong \angle D$	$BC \cong EF$
$\angle B \cong \angle E$	$CA \cong FD$
$\angle C \cong \angle F$	$AB \cong DE$

Reteaching 7-8

Circles

A **circle** is the set of points in a plane that are all the same distance from a point, called the *center*. This circle is called circle *A*.

\overline{AB} is a **radius** of circle *A*. It is a segment that has one endpoint on the circle and the other at the center. \overline{AC} and \overline{AD} are also *radii* of circle *A*.

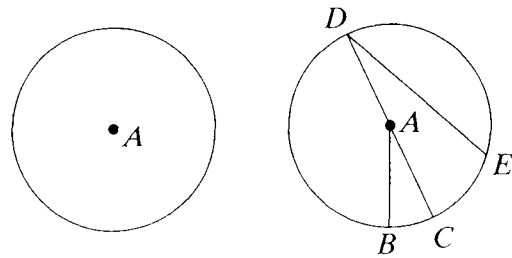
\overline{DC} is a **diameter** of circle *A*. It is a segment that passes through the center of the circle and has both endpoints on the circle.

\overline{DE} is a chord of circle *A*. A **chord** is a segment that has both endpoints on the circle.

\widehat{DB} is an arc of circle *A*. An **arc** is part of a circle.

$\angle DAB$ is a **central angle** of circle *A*. It is an angle with its vertex at the center of the circle.

\widehat{DEC} is a **semicircle**. A semicircle is an arc that is half a circle.



Reteaching 7-9

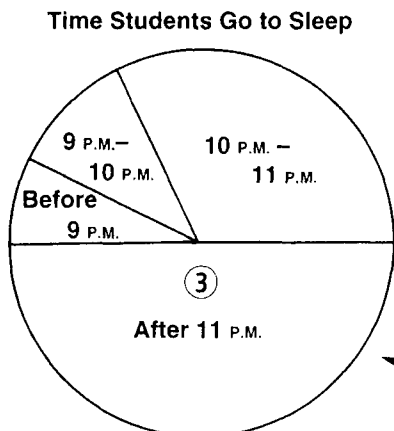
Circle Graphs

Use the information in the table to create a circle graph.

The class took a survey of what time students usually go to sleep.
To make a circle graph:

- ① Find the total number of students.
- ② Use a proportion to find the measure of each central angle. Round to the nearest degree.
- ③ Use a compass. Draw a circle. Use a protractor. Draw the central angles. Label each sector.

Time Students Go to Sleep	Number of Students	② Central Angle Measure
Before 9 P.M.	2	$\frac{2}{28} = \frac{a}{360^\circ}$ $a \approx 26^\circ$
9 P.M.–10 P.M.	3	$\frac{3}{28} = \frac{b}{360^\circ}$ $b \approx 39^\circ$
10 P.M.–11 P.M.	9	$\frac{9}{28} = \frac{c}{360^\circ}$ $c \approx 116^\circ$
After 11 P.M.	14	$\frac{14}{28} = \frac{d}{360^\circ}$ $d \approx 180^\circ$
① Total	28	



The central angle measures add to 361° because of rounding, but the difference does not show in the graph.