

Sixth and Seventh Regular Math

McElderry/Tomczyk

All work is taught and guided on the McElderry/Tomczyk Website. Watch videos and complete any practice posted on the website for each day. Complete all problems on worksheets.

<https://sites.google.com/scsreading.org/scsmiddleschoolmathcybersnowda/home?authuser=1>

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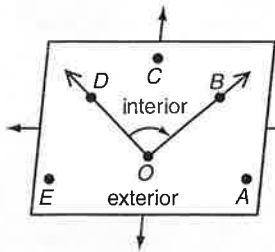
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Day Six

Measure and Draw Angles

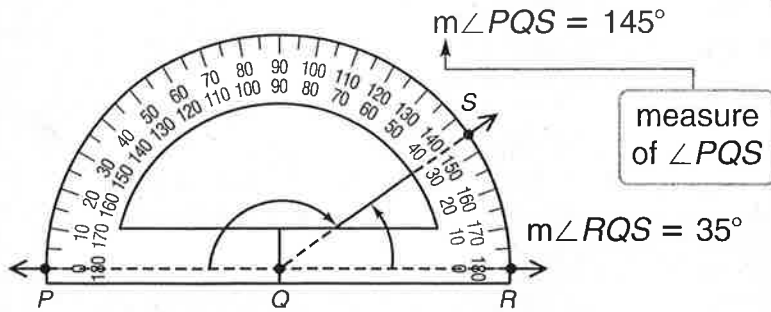
Name _____

Date _____



Angle: $\angle DOB$
or $\angle BOD$
or $\angle O$
Sides: \overrightarrow{OD} , \overrightarrow{OB}
Vertex: O

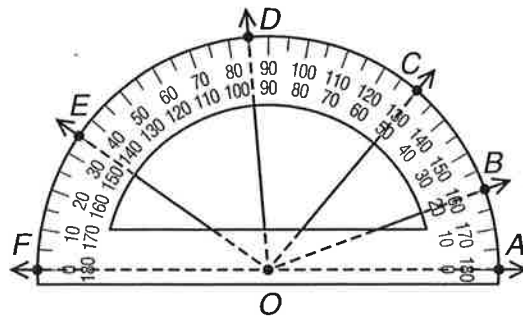
Plane EAC contains $\angle DOB$.
Point C is in the interior of $\angle DOB$.
Points E and A are in the exterior of $\angle DOB$.



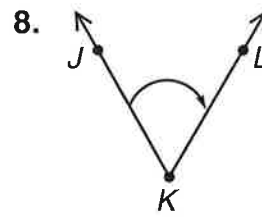
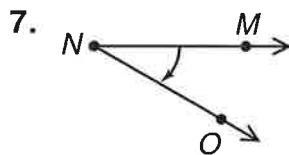
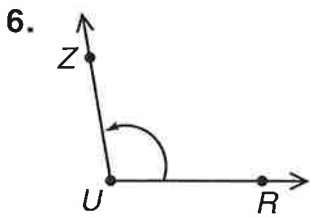
Read the measure of each angle where \overrightarrow{QS} crosses the protractor.

Name the points that are in the interior and the points that are in the exterior of the given angle. Then find the measure of the angle.

- $\angle AOE$ _____
- $\angle AOC$ _____
- $\angle AOD$ _____
- $\angle FOC$ _____
- $\angle FOD$ _____



Estimate the measure of each angle. Then use a protractor to find the exact measure.



Use a protractor to draw each angle.

9. 15° 10. 150° 11. 65°

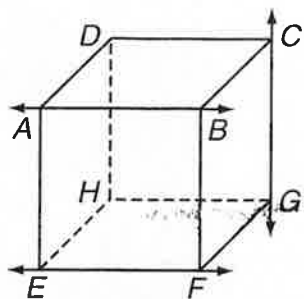
12. 135° 13. 55° 14. 110°

Day Six

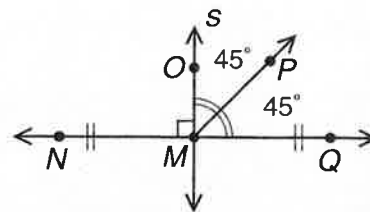
Lines and Angles

Name _____

Date _____



\overline{AB} and \overline{EF} are in the same plane.
 \overline{AB} and \overline{EF} are parallel lines.
 \overline{AB} and \overline{CG} are in different planes.
 \overline{AB} and \overline{CG} are skew lines.



M is the midpoint of \overline{NQ} .

$$\overline{NM} \cong \overline{QM}$$

is congruent to

Line s is a perpendicular bisector of \overline{NQ} .

\overline{MP} is the angle bisector of $\angle OMQ$.

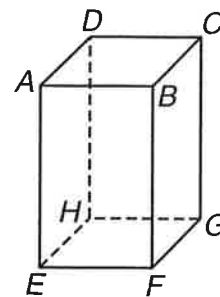
$$\angle OMP \cong \angle PMQ$$

Use the figure at the right.

1. Name a line that is parallel to the given line.

a. \overline{FG} _____ b. \overline{AB} _____

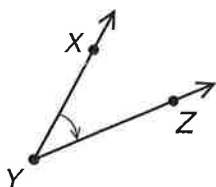
2. Name the lines that form a pair of skew lines with \overline{DC} .



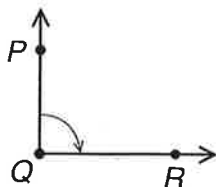
Classify each angle as *right*, *acute*, *obtuse*, or *straight*.

Use a protractor to check.

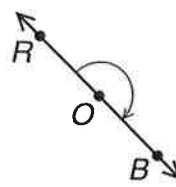
3.



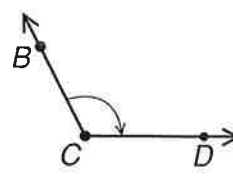
4.



5.



6.



Write *true* or *false*. If *false*, explain why. Use the figure at the right.

7. $\overline{JF} \perp \overline{EI}$

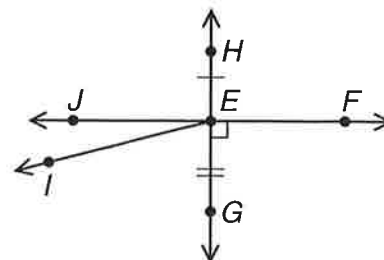
8. \overline{EI} bisects $\angle JEG$.

9. $\angle JEH \cong \angle FEG$

10. $\overline{EH} \perp \overline{EF}$

11. $\overline{HG} \parallel \overline{JF}$

12. E is the midpoint of \overline{HG}



Draw a figure for each description. Use a separate sheet of paper.

13. $\angle ABC$ is bisected by \overline{BX} .

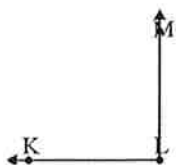
14. $\overline{KL} \parallel \overline{RS}$

15. \overline{MN} bisects \overline{OP} at Y.

16. $\overline{BC} \perp \overline{FG}$

Solve each problem.

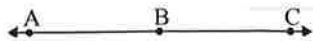
1)



Which choice best represents $\angle KLM$?

- A. 139°
- B. 7°
- C. 90°
- D. 44°

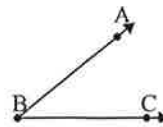
2)



Which choice best represents $\angle ABC$?

- A. 81°
- B. 16°
- C. 180°
- D. 150°

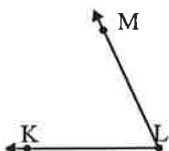
3)



Which choice best represents $\angle ABC$?

- A. 168°
- B. 88°
- C. 129°
- D. 39°

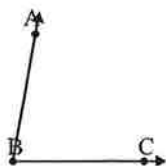
4)



Which choice best represents $\angle KLM$?

- A. 65°
- B. 8°
- C. 138°
- D. 97°

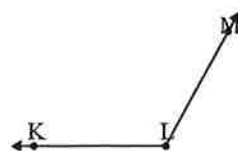
5)



Which choice best represents $\angle ABC$?

- A. 34°
- B. 80°
- C. 9°
- D. 57°

6)



Which choice best represents $\angle KLM$?

- A. 143°
- B. 119°
- C. 30°
- D. 97°

7)



Which choice best represents $\angle ABC$?

- A. 168°
- B. 115°
- C. 87°
- D. 22°

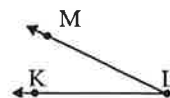
8)



Which choice best represents $\angle KLM$?

- A. 169°
- B. 68°
- C. 141°
- D. 47°

9)



Which choice best represents $\angle KLM$?

- A. 26°
- B. 117°
- C. 148°
- D. 82°

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____

Day Seven

Angle Pairs

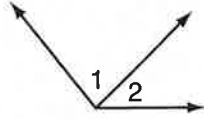
Name _____

Date _____

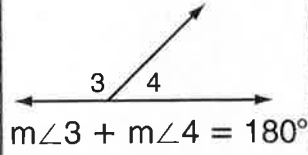
If the measures of any two angles have a sum of 90° , those angles are **complementary angles**.

If the measures of any two angles have a sum of 180° , those angles are **supplementary angles**.

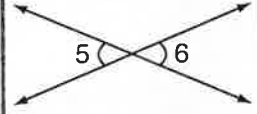
$\angle 1$ and $\angle 2$ are **adjacent angles**.



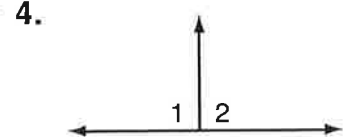
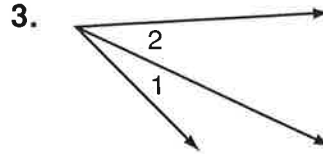
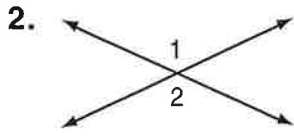
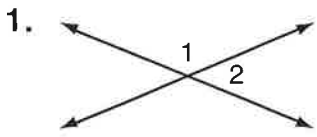
$\angle 3$ and $\angle 4$ form a **linear pair**.



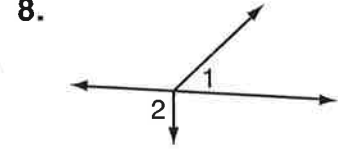
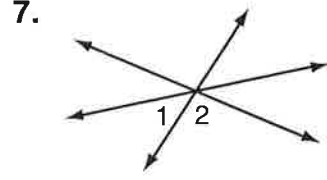
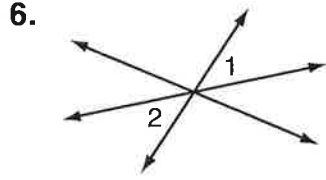
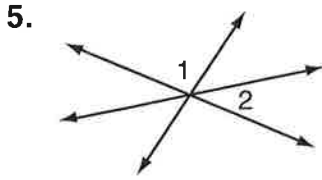
$\angle 5$ and $\angle 6$ are **vertical angles**.
 $\angle 5 \cong \angle 6$



Are $\angle 1$ and $\angle 2$ adjacent angles? Write *yes* or *no*. If *no*, explain why.



Are $\angle 1$ and $\angle 2$ vertical angles? Write *yes* or *no*. If *no*, explain why.



Write whether the angle pairs are *complementary angles*, *supplementary angles*, or *neither*.

9. $45^\circ, 45^\circ$ _____

10. $73^\circ, 107^\circ$ _____

11. $35^\circ, 65^\circ$ _____

12. $170^\circ, 10^\circ$ _____

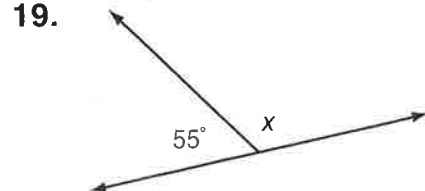
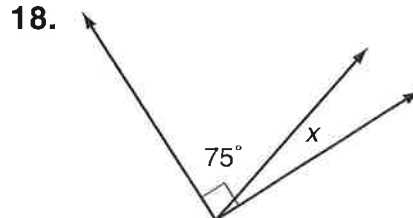
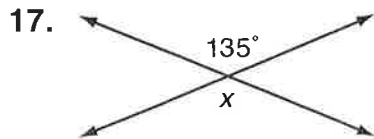
13. $87^\circ, 83^\circ$ _____

14. $62^\circ, 28^\circ$ _____

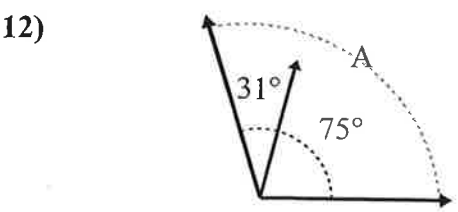
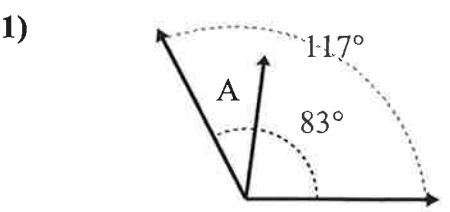
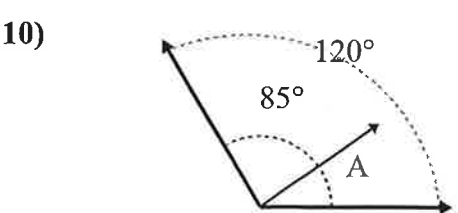
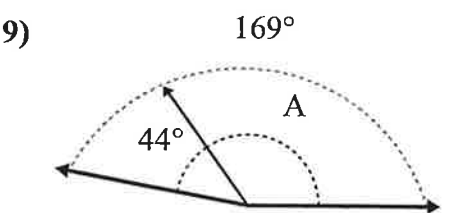
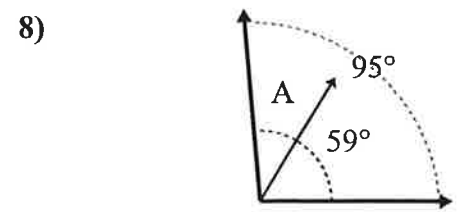
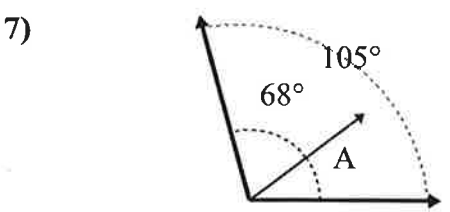
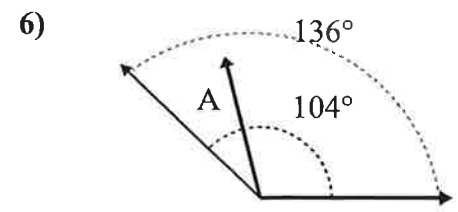
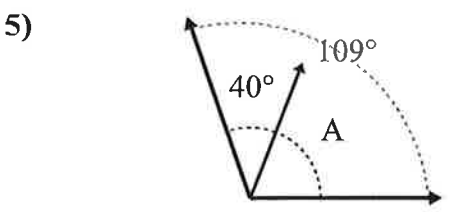
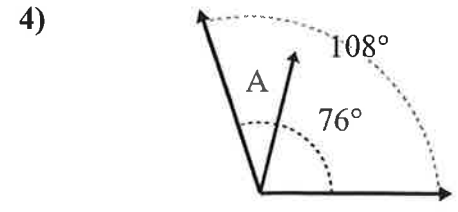
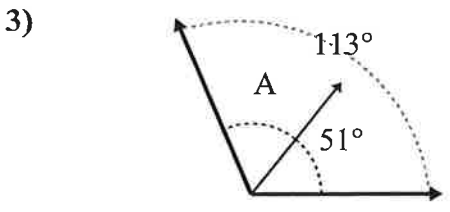
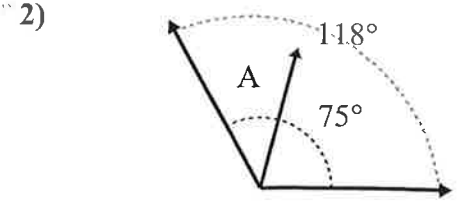
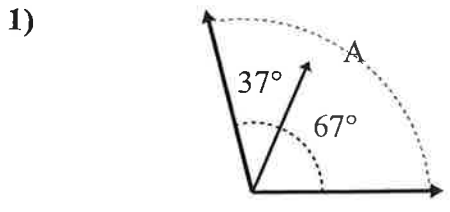
15. $89^\circ, 1^\circ$ _____

16. $95^\circ, 85^\circ$ _____

Find the value of x .



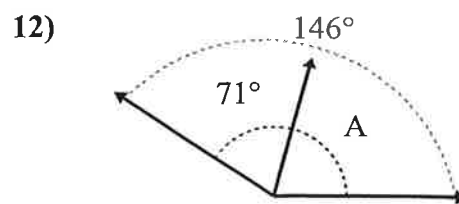
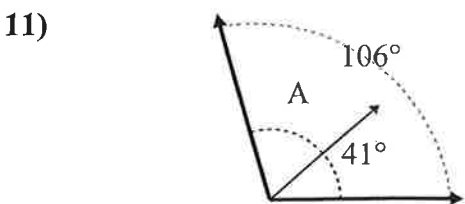
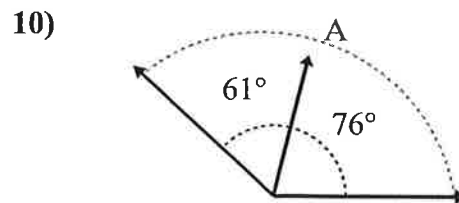
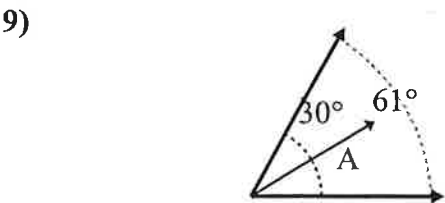
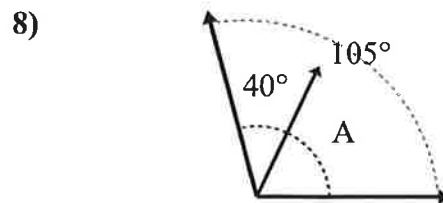
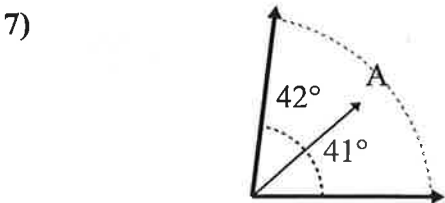
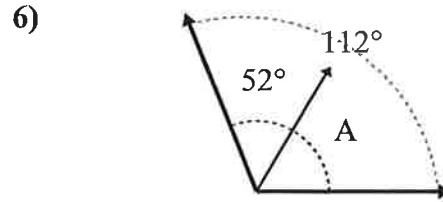
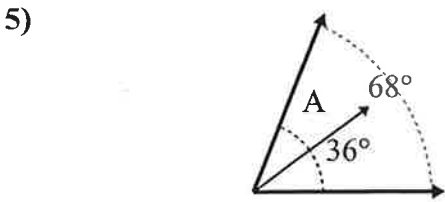
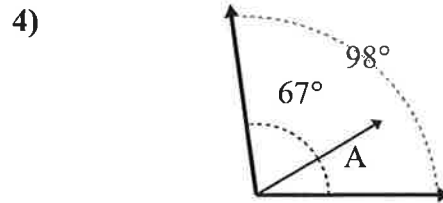
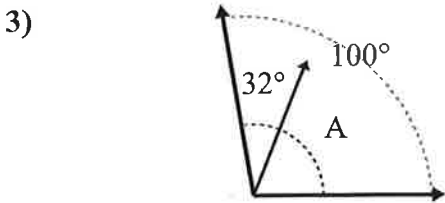
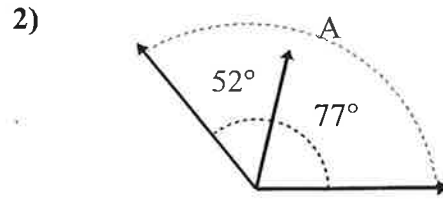
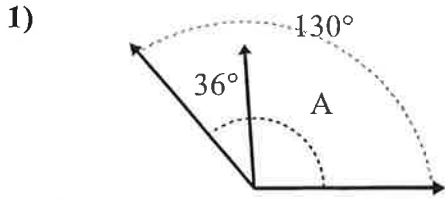
Determine the value of 'A'.



Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

Determine the value of 'A'.



Answers

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

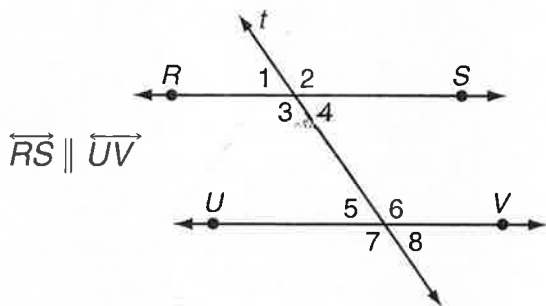
12. _____

Angles of Parallel Lines

Name _____

Date _____

A *transversal* intersects two or more lines at different points. Line t is a transversal.



A transversal forms pairs of angles with special names.

Corresponding angles:

$\angle 1$ and $\angle 5$; $\angle 2$ and $\angle 6$; $\angle 3$ and $\angle 7$; $\angle 4$ and $\angle 8$

$\angle 1 \cong \angle 5$; $\angle 2 \cong \angle 6$; $\angle 3 \cong \angle 7$; $\angle 4 \cong \angle 8$

Alternate interior angles:

$\angle 3$ and $\angle 6$; $\angle 4$ and $\angle 5$

$\angle 3 \cong \angle 6$; $\angle 4 \cong \angle 5$

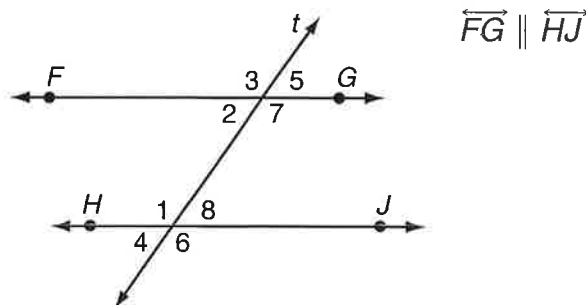
Alternate exterior angles:

$\angle 1$ and $\angle 8$; $\angle 2$ and $\angle 7$

$\angle 1 \cong \angle 8$; $\angle 2 \cong \angle 7$

Identify each pair of angles as *alternate interior*, *alternate exterior*, *corresponding*, or *none of these*.

- $\angle 1$ and $\angle 2$ _____
- $\angle 3$ and $\angle 6$ _____
- $\angle 2$ and $\angle 8$ _____
- $\angle 6$ and $\angle 7$ _____



Use the figure above to find each measure.

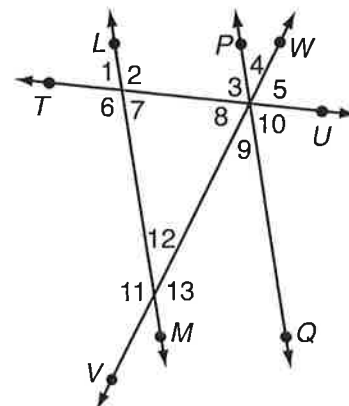
- $m\angle 4$ when $m\angle 2 = 45^\circ$ _____
- $m\angle 7$ when $m\angle 8 = 45^\circ$ _____
- $m\angle 3$ when $m\angle 6 = 135^\circ$ _____
- $m\angle 1$ when $m\angle 5 = 45^\circ$ _____

Problem Solving In the figure at the right, $\overline{LM} \parallel \overline{PQ}$. \overline{TU} and \overline{VW} are transversals. Also, $m\angle 3 = 75^\circ$ and $m\angle 12 = 35^\circ$. Use the figure for exercises 9–11.

- What is the measure of $\angle 8$? Explain your answer.

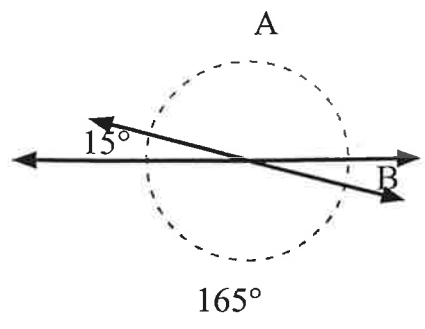
- What is the measure of $\angle 5$? Explain your answer.

- What is the measure of $\angle 1$? Explain your answer.

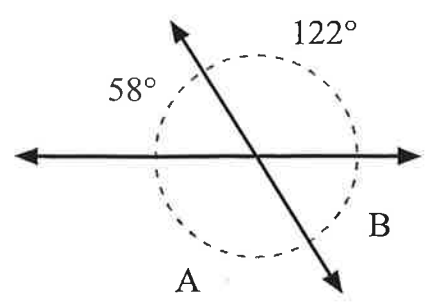


Find the value of angle 'A' and angle 'B'.

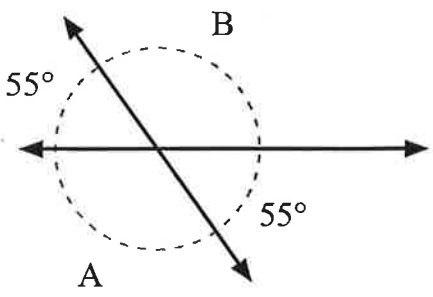
1)



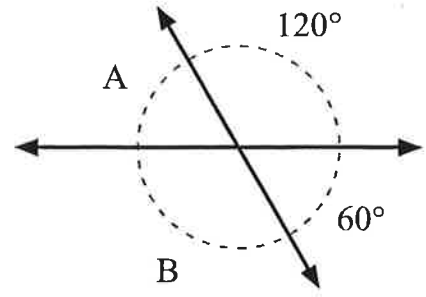
2)



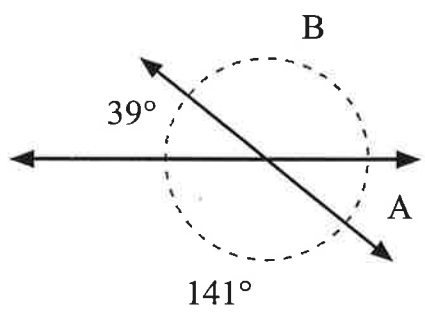
3)



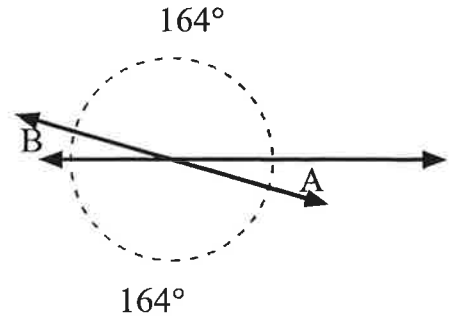
4)



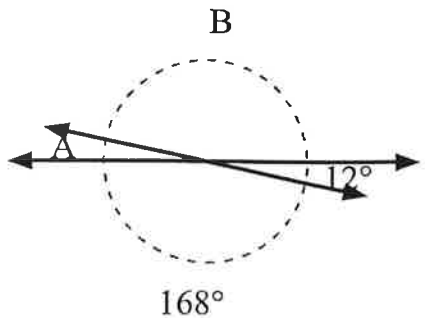
5)



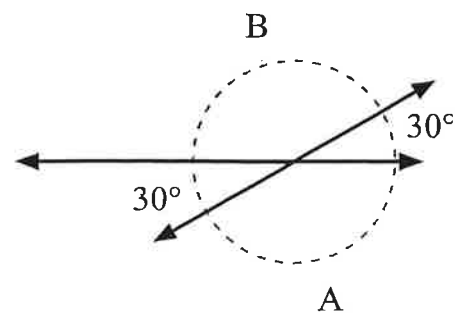
6)



7)



8)



Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Day Nine

Polygons

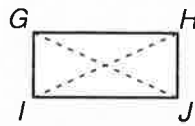
Name _____

Date _____

Regular polygon: all sides and all angles are congruent.

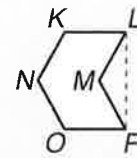
Diagonal: a line segment that connects two vertices of a polygon and is *not* a side.

Convex Polygon



\overline{GJ} and \overline{HI} are diagonals. All diagonals have all points inside the polygon.

Concave Polygon



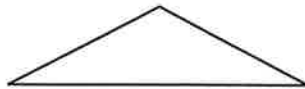
\overline{LP} is a diagonal that has points outside the polygon.

Write *regular* or *not regular* for each polygon. Then write whether the polygon is *convex* or *concave*.

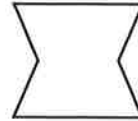
1.



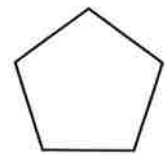
2.



3.



4.



Draw each polygon. Write the number of sides and vertices for each.

5. pentagon

6. decagon

7. quadrilateral

8. heptagon

Find the number of diagonals for each convex polygon.

9. rhombus _____ 10. hexagon _____ 11. pentagon _____ 12. triangle _____

On a separate sheet of paper draw the polygon described. Then draw and name its diagonals.

13. quadrilateral $ABCD$ with no right angles

14. concave pentagon $MNRST$

Angles of Polygons

Name _____

Date _____

Polygon	Number of Sides	Number of Triangles Formed by Diagonals from One Vertex	Sum of the Measures of the Interior Angles
pentagon	5	$5 - 2 = 3$	$3 \times 180^\circ = 540^\circ$
hexagon	6	$6 - 2 = 4$	$4 \times 180^\circ = 720^\circ$
octagon	8	$8 - 2 = 6$	$6 \times 180^\circ = 1080^\circ$
n -gon	n	$n - 2$	$(n - 2) \times 180^\circ$

Find the number of triangles formed by the diagonals from one vertex of each polygon.

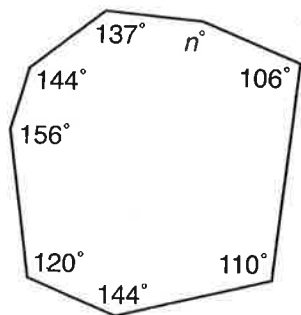
1. 14-gon _____ 2. rectangle _____ 3. 19-gon _____
 4. nonagon _____ 5. 12-gon _____ 6. parallelogram _____

Find the sum of the measures of the interior angles of each polygon.

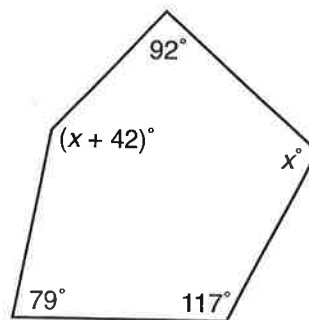
7. 14-gon _____ 8. rhombus _____ 9. 19-gon _____
 10. nonagon _____ 11. 12-gon _____ 12. heptagon _____

Find the value of the variable in each polygon.

13.



14.



Problem Solving

15. Derek draws a polygon. The sum of its interior angles is 1440° . What kind of polygon does Derek draw?

16. Four of the interior angles of Fiona's hexagon measure 167° , 105° , 145° , and 135° . The other interior angles are congruent to each other. What are the measures of the other angles?

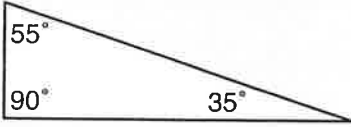
Day Ten

Angles of Triangles and Quadrilaterals

Name _____

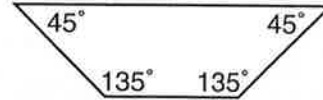
Date _____

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



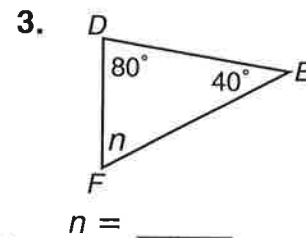
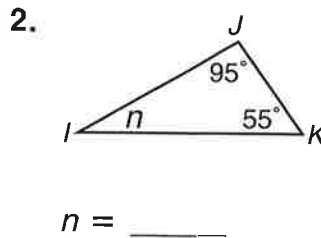
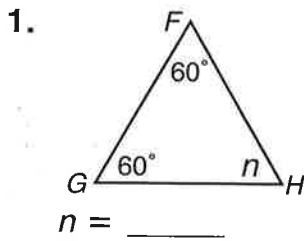
$$90^\circ + 35^\circ + 55^\circ = 180^\circ$$

The sum of the measures of the interior angles of a quadrilateral is 360° .



$$45^\circ + 45^\circ + 135^\circ + 135^\circ = 360^\circ$$

Find the measure of the third angle of each triangle.

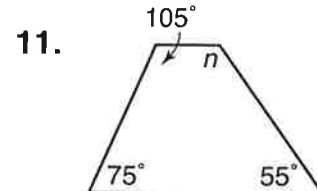
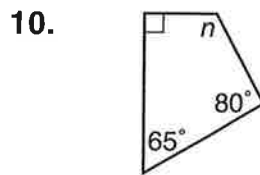
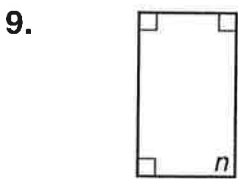


4. $\angle K = 38^\circ$, $\angle L = 89^\circ$, $\angle M = \underline{\hspace{2cm}}$ 5. $\angle X = 85^\circ$, $\angle Y = 49^\circ$, $\angle Z = \underline{\hspace{2cm}}$

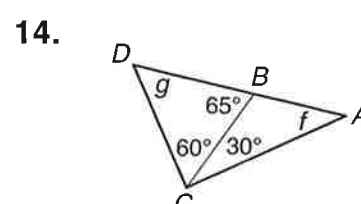
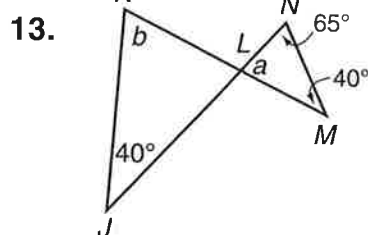
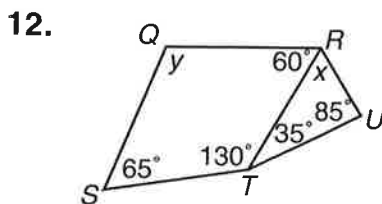
Find the measure of the fourth angle of each quadrilateral.

6. $\angle E = 99^\circ$, $\angle F = 47^\circ$, $\angle G = 79^\circ$, $\angle H = \underline{\hspace{2cm}}$ 7. $\angle J = 23^\circ$, $\angle K = 109^\circ$, $\angle L = 97^\circ$, $\angle M = \underline{\hspace{2cm}}$ 8. $\angle Q = 88^\circ$, $\angle R = 93^\circ$, $\angle S = 97^\circ$, $\angle T = \underline{\hspace{2cm}}$

Find the value of n in each quadrilateral.



Find the value of each variable.



Problem Solving

15. Trapezoid $EFGH$ has two pairs of congruent angles. One of the angles measures 124° . What are the measures of the other angles? _____

Day Ten Triangles

Name _____

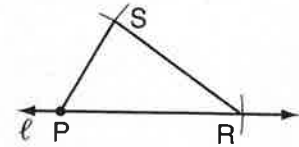
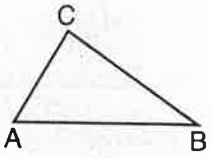
Date _____

Construct $\triangle PRS$ congruent to $\triangle ABC$.

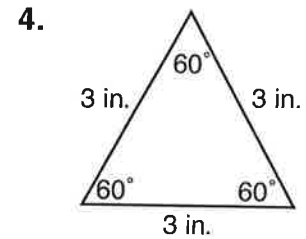
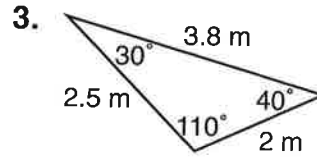
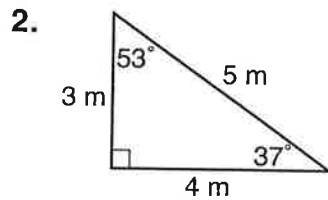
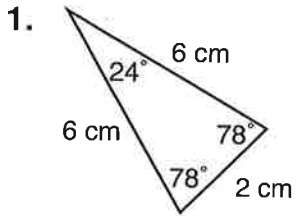
• Draw $\overline{PR} \cong \overline{AB}$ on line ℓ .

• Measure \overline{AC} . From point P construct an arc. Measure \overline{BC} . From point R construct an arc.

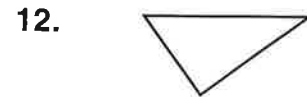
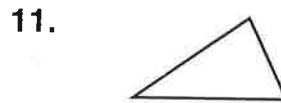
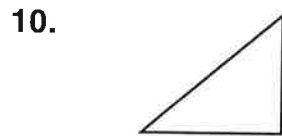
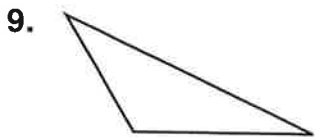
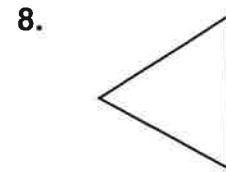
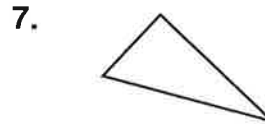
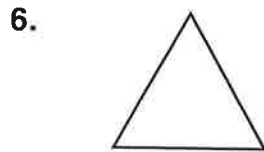
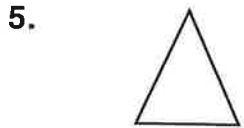
• Label point S . Draw \overline{PS} and \overline{RS} . $\triangle PRS \cong \triangle ABC$



Classify each triangle by the measure of its sides and by the measure of its angles.



Use a protractor and a centimeter ruler to measure the sides and angles of each triangle. Then classify the triangle by its sides and angles.



Draw the triangle indicated. Then construct a triangle congruent to it.

13. scalene $\triangle RST$

14. acute $\triangle CDE$

15. isosceles $\triangle OPQ$

Day Five Quadrilaterals

Name _____

Date _____

Construct parallelogram $MNOP$.

1. Draw \overline{MN} and \overline{MP} .
2. From P and N , construct arcs.
3. Label O . Draw \overline{NO} and \overline{OP} .

$MNOP$ is a parallelogram.

Complete the table. Write *yes* or *no* for each description.

	Description	Rhombus	Square	Rectangle	Parallelogram	Trapezoid
1.	4 right angles					
2.	opposite sides parallel					
3.	all sides congruent					

Write whether each statement is *true* or *false*. Explain.

4. Some rectangles are trapezoids.

5. All rectangles are parallelograms.

6. Some parallelograms are rectangles.

7. All rhombuses are squares.

Construct the figure described.

8. parallelogram $ABCD$

9. rhombus $RSTU$ with each side 2 cm long

Circles

Name _____

Date _____

Point M is the center of circle M .

\overline{MA} is a radius.

\overline{AN} is a diameter.

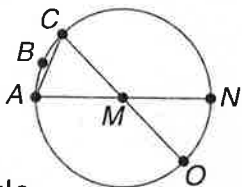
\overline{AC} is a chord.

$\angle AMC$ is a central angle.

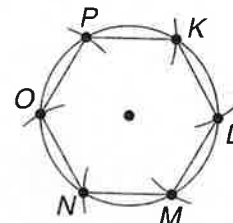
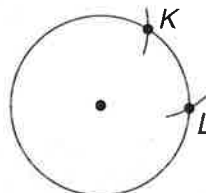
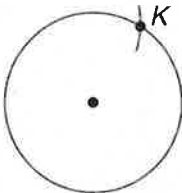
\widehat{ACN} is a semicircle. $m\widehat{ACN} = 180^\circ$

\widehat{ABC} is a minor arc. $m\widehat{ABC} < 180^\circ$

\widehat{CON} is a major arc. $m\widehat{CON} > 180^\circ$



Construct a regular hexagon by using a circle.



$KLMNOP$ is a regular hexagon.

Use a compass to construct a circle with a radius of 2 cm.
Then draw and label each of the following:

1. center: point O
2. radius: \overline{OR}
3. central angle: $\angle ROT$
4. diameter: \overline{XY}
5. chord: \overline{RS}
6. chord: \overline{YZ}

Use circle M in the display above for exercises 7–9.

7. Name one semicircle other than \widehat{ACN} : _____
8. Name one minor arc other than \widehat{ABC} : _____
9. Name one major arc other than \widehat{CON} : _____

For each statement, write *always*, *sometimes*, or *never*.

10. One endpoint of every radius of a circle is the center of the circle.

11. Chords pass through the center of a circle.

12. A diameter forms a straight angle.

13. A central angle of a circle has its vertex on the circle.

Construct each regular polygon by using a circle.
Explain your process.

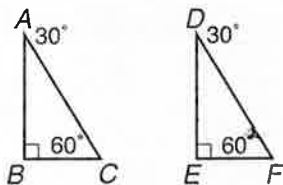
14. an octagon
15. a hexagon
16. a nonagon

Congruent and Similar Polygons

Name _____

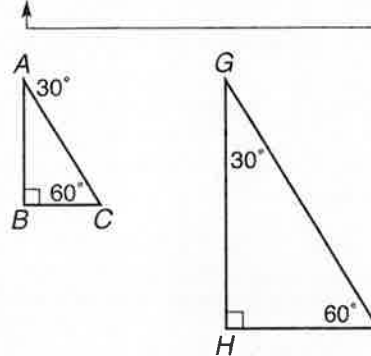
Date _____

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



$$\begin{aligned} \overline{AB} &\cong \overline{DE} & \angle A &\cong \angle D \\ \overline{BC} &\cong \overline{EF} & \angle B &\cong \angle E \\ \overline{AC} &\cong \overline{DF} & \angle C &\cong \angle F \end{aligned}$$

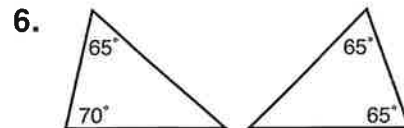
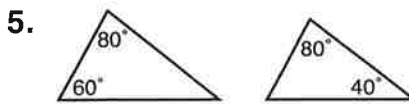
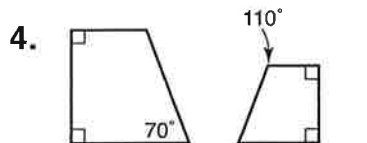
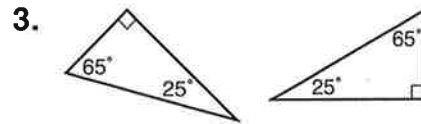
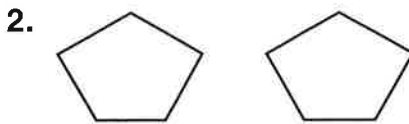
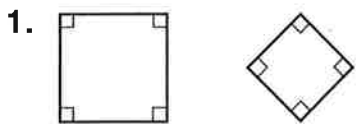
$$\triangle ABC \sim \triangle GHI$$



is similar to

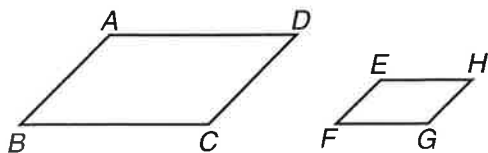
$$\begin{aligned} \angle A &\cong \angle G \\ \angle B &\cong \angle H \\ \angle C &\cong \angle I \end{aligned}$$

Do the polygons appear to be *congruent*, *similar*, or *neither*?



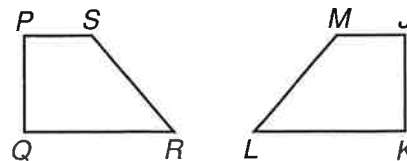
Name the corresponding congruent parts.

Parallelogram $ABCD \sim$ Parallelogram $EFGH$



7. $\angle A \cong$ _____ 8. $\angle C \cong$ _____
 9. $\angle H \cong$ _____ 10. $\angle B \cong$ _____

Trapezoid $PQRS \cong$ Trapezoid $JKLM$



11. $\overline{PS} \cong$ _____ 12. $\overline{JK} \cong$ _____
 13. $\overline{RS} \cong$ _____ 14. $\angle L \cong$ _____
 15. $\angle Q \cong$ _____ 16. $\angle M \cong$ _____

Problem Solving

17. In the figures at the right, $KLMN \cong WXYZ$. Find the measure of $\angle Y$ and $\angle W$ and the lengths of \overline{XY} and \overline{WX} .

