1. Four friends used a tape measure to find their heights in inches. Which shows their heights in order from least to greatest?
   A 39, 57, 46, 43
   B 43, 46, 57, 39
   C 39, 43, 46, 57
   D 57, 46, 43, 39

2. Jack has 106 toy cars. He gives 9 to his friend Steve and 41 to his sister Dana. How many toy cars does Jack have now?
   A 46
   B 50
   C 56
   D 65

3. Josh has 48 stickers and wants to share them with 8 friends. He wants to give each friend the same number of stickers. Which number sentence is in the same fact family as \(48 \div 8 = \square\)?
   A \(48 \times 6 = \square\)
   B \(6 \times \square = 48\)
   C \(48 \div 16 = \square\)
   D \(\square \times 8 = 16\)

4. Clint has 188 marbles. How many marbles does he have rounded to the nearest hundred?

5. If Jane rides her bike 3 miles each day for 26 weeks, how many miles will Jane have ridden her bike?

6. Hugo walked 2 miles on Thursday. He walked twice as many miles on Friday. On Saturday, he walked a mile more than he did on Friday. How many miles did Hugo walk on Saturday?
1. Four friends used a tape measure to find their heights in inches. Which shows their heights in order from least to greatest?
   A 39, 57, 46, 43
   B 43, 46, 57, 39
   C 39, 43, 46, 57
   D 57, 46, 43, 39

2. Jack has 106 toy cars. He gives 9 to his friend Steve and 41 to his sister Dana. How many toy cars does Jack have now?
   A 46
   B 50
   C 56
   D 65

3. Josh has 48 stickers and wants to share them with 8 friends. He wants to give each friend the same number of stickers. Which number sentence is in the same fact family as $48 \div 8 = \square$?
   A $48 \times 6 = \square$
   B $6 \times \square = 48$
   C $48 \div 16 = \square$
   D $\square \times 8 = 16$

4. Clint has 188 marbles. How many marbles does he have rounded to the nearest hundred?
   200 marbles

5. If Jane rides her bike 3 miles each day for 26 weeks, how many miles will Jane have ridden her bike?
   546 miles

6. Hugo walked 2 miles on Thursday. He walked twice as many miles on Friday. On Saturday, he walked a mile more than he did on Friday. How many miles did Hugo walk on Saturday?
   5 miles
Maggie is half as old as her sister, Jane. If Maggie is 14 years old, how old is Jane? How old will Maggie be when Jane is 30? 35? [Hint: Solve the simpler problem first.]
1. Which term would you use to describe the power line cable shown?
   A. perpendicular lines  
   B. parallel lines  
   C. intersecting lines  
   D. plane

2. Joshua bought a tie for his father. Which term describes the pattern in the tie?
   A. perpendicular lines  
   B. parallel lines  
   C. intersecting lines  
   D. plane

3. Writing to Explain  Debra drew 2 lines, lines $AB$ and $CD$. Lines $AB$ and $CD$ are parallel. She then drew a line $EF$ that was perpendicular to line $CD$. If line $EF$ intersects line $AB$, is it perpendicular to line $AB$? Draw a picture to help explain your answer.
1. Which term would you use to describe the power line cable shown?

A. perpendicular lines  
B. parallel lines  
C. intersecting lines  
D. plane

2. Joshua bought a tie for his father. Which term describes the pattern in the tie?

A. perpendicular lines  
B. parallel lines  
C. intersecting lines  
D. plane

3. Writing to Explain  Debra drew 2 lines, lines $AB$ and $CD$. Lines $AB$ and $CD$ are parallel. She then drew a line $EF$ that was perpendicular to line $CD$. If line $EF$ intersects line $AB$, is it perpendicular to line $AB$? Draw a picture to help explain your answer.

See student samples to the right.
Points, Lines, and Planes

Here are some important geometric terms.

Point
A point is an exact location in space. This is point $X$.

Line
A straight path of points that goes on and on in both directions. This is line $AB$.

Parallel lines
Never intersect.

Intersecting lines
Pass through the same point.

Perpendicular lines
Lines that form right angles.

Use geometric terms to describe what is shown. Be as specific as possible.

1. 

2. 

3. 

4. Name three different lines.

5. Name a set of parallel lines.
Name ____________________________

**Points, Lines, and Planes**

Here are some important geometric terms.

**Point**
A point is an exact location in space.
This is point $X$.

**Line**
A straight path of points that goes on and on in both directions. This is line $AB$.

**Parallel lines**
Never intersect.

**Intersecting lines**
Pass through the same point.

**Perpendicular lines**
Lines that form right angles.

Use geometric terms to describe what is shown. Be as specific as possible.

1. **Two perpendicular lines**

2. **Intersecting lines**

3. **Three points on a line**

4. Name three different lines.
   - $\overrightarrow{EL}$, $\overrightarrow{AB}$, $\overrightarrow{CD}$

5. Name a set of parallel lines.
   - $\overrightarrow{CD}$ and $\overrightarrow{FG}$

---

Sample answers for 4–5

- $\overrightarrow{EL}$, $\overrightarrow{AB}$, $\overrightarrow{CD}$
- $\overrightarrow{CD}$ and $\overrightarrow{FG}$
Points, Lines, and Planes

Use geometric terms to describe what is shown. Be as specific as possible.

1. ________________

2. ________________

3. ________________

4. ________________

5. Name two lines.
   ________________

6. Name two lines that are perpendicular.
   ________________

7. Which two lines are parallel?
   A  HK and JL
   B  HJ and JL
   C  HJ and JK
   D  HJ and LM

8. Writing to Explain  Describe a point.
   ________________
   ________________
   ________________
Points, Lines, and Planes

Use geometric terms to describe what is shown. Be as specific as possible.

1. \[ \text{Line} \]

2. \[ \text{Perpendicular lines} \]

3. \[ \text{Point} \]

4. \[ \text{Intersecting lines} \]

5. Name two lines. \[ \overrightarrow{AE} \text{ and } \overrightarrow{GD} \]

6. Name two lines that are perpendicular. \[ \overrightarrow{AE} \text{ and } \overrightarrow{GF} \]

7. Which two lines are parallel?
   - A \[ \overrightarrow{HK} \text{ and } \overrightarrow{JL} \]
   - B \[ \overrightarrow{HJ} \text{ and } \overrightarrow{JK} \]
   - C \[ \overrightarrow{HJ} \text{ and } \overrightarrow{JK} \]
   - D \[ \overrightarrow{HJ} \text{ and } \overrightarrow{LM} \]

8. Writing to Explain Describe a point.
   
   Sample answer: A point is an exact location in space.
Street Smarts

1. Name 2 streets that run north and south, intersect South Street, and are parallel to each other.

2. Name 2 streets that are parallel and run east and west.

3. Name a street that intersects Linden Street at a right angle and intersects no other street.

4. Name a street that intersects South Street, but NOT at a right angle.

5. Three parallel streets intersect an east-west street at right angles. Name the east-west street.
1. Name 2 streets that run north and south, intersect South Street, and are parallel to each other.

   **Naples Avenue and Green Avenue**

2. Name 2 streets that are parallel and run east and west.

   **Linden Street and South Street**

3. Name a street that intersects Linden Street at a right angle and intersects no other street.

   **Aberdeen Avenue**

4. Name a street that intersects South Street, but NOT at a right angle.

   **Elton Road**

5. Three parallel streets intersect an east-west street at right angles. Name the east-west street.

   **Linden Street**
1. Tom has 12 compartments in his tackle box. In each compartment he has 5 fishing lures. How many fishing lures does he have in his tackle box?
   A 72  
   B 60  
   C 48  
   D 17

2. Nick has $0.88 in his left pocket and $0.43 in his right pocket. How much money does he have in both pockets? Use the decimal grids shown below to help you add.
   A $0.31  
   B $0.45  
   C $1.21  
   D $1.31

3. Paula has picked 360 blueberries. She plans to make 12 blueberry muffins and wants to have the same number of blueberries in each muffin. How many blueberries should she put into each muffin?
   A 120  
   B 90  
   C 60  
   D 30

4. Jessica has two sticks. The sticks are the same distance apart at every point. How would you best describe the sticks?

5. Shade in the circle to show a fraction equivalent to $\frac{4}{8}$.

6. What is a geometric term for the lines below?
1. Tom has 12 compartments in his tackle box. In each compartment he has 5 fishing lures. How many fishing lures does he have in his tackle box?
   - A 72
   - B 60
   - C 48
   - D 17

2. Nick has $0.88 in his left pocket and $0.43 in his right pocket. How much money does he have in both pockets? Use the decimal grids shown below to help you add.
   - A $0.31
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3. Paula has picked 360 blueberries. She plans to make 12 blueberry muffins and wants to have the same number of blueberries in each muffin. How many blueberries should she put into each muffin?
   - A 120
   - B 90
   - C 60
   - D 30

4. Jessica has two sticks. The sticks are the same distance apart at every point. How would you best describe the sticks?
   - They’re parallel.

5. Shade in the circle to show a fraction equivalent to $\frac{4}{8}$.

6. What is a geometric term for the lines below?
   - Intersecting lines
Line $AB$ is parallel to line $CD$. Line $CD$ is parallel to line $EF$. Line $EF$ is perpendicular to line $AB$. Is this possible? Why or why not? [Hint: Draw a picture.]
1. Jason drew the following angle. Which term describes the angle he drew?

   ![Angle Diagram]

   A right angle  
   B acute angle  
   C obtuse angle  
   D straight angle

2. Lisa drew 2 rays that share an endpoint. Which of the following is Lisa’s drawing?

   ![Ray Diagrams]

   A  
   B  
   C  
   D

3. Nina’s best friend’s name starts with a letter that includes 2 parallel lines. Which letter begins her friend’s name?

   A A  
   B W  
   C N  
   D X

4. **Writing to Explain** Philip drew a right angle. He then drew a ray between the two rays that formed the right angle. What kind of angle did the new ray form?
1. Jason drew the following angle. Which term describes the angle he drew?

   ![Angle Diagram]

   A right angle  
   B acute angle  
   C obtuse angle  
   D straight angle

2. Lisa drew 2 rays that share an endpoint. Which of the following is Lisa’s drawing?

   ![Ray Diagrams]

   A  
   B  
   C  
   D

3. Nina’s best friend’s name starts with a letter that includes 2 parallel lines. Which letter begins her friend’s name?

   A A  
   B W  
   C N  
   D X

4. Writing to Explain  Philip drew a right angle. He then drew a ray between the two rays that formed the right angle. What kind of angle did the new ray form?  

   See student samples to the right.
Lines, Rays, and Angles

Here are some important geometric terms.

- **Line segment**: A part of a line. It has two endpoints. This is line segment $XY$.
- **Ray**: A part of a line. It has one endpoint and goes on and on in one direction. This is ray $AB$.
- **Right angle**: A square corner.
- **Obtuse angle**: Greater than a right angle.
- **Acute angle**: Less than a right angle.
- **Straight angle**: Forms a straight line.

Use geometric terms to describe what is shown. Be as specific as possible.

1. 

2. 

3. 

4. Name three different rays.

5. Name two different line segments.
Lines, Rays, and Angles

Here are some important geometric terms.

- **Line segment**: A part of a line. It has two endpoints. This is line segment XY.
- **Ray**: A part of a line. It has one endpoint and goes on and on in one direction. This is ray AB.
- **Right angle**: A square corner.
- **Obtuse angle**: Greater than a right angle.
- **Acute angle**: Less than a right angle.
- **Straight angle**: Forms a straight line.

Use geometric terms to describe what is shown. Be as specific as possible.

1. Obtuse angle
2. Straight angle
3. Line segment

4. Name three different rays. \( \overrightarrow{FG}, \overrightarrow{EL}, \overrightarrow{ED} \)

5. Name two different line segments. \( \overline{FB}, \overline{AF} \)

Sample answers for 4–5
Lines, Rays, and Angles

Use geometric terms to describe what is shown. Be as specific as possible.

1. 
2. 

3. 
4. 

5. Name two line segments.

6. Name two obtuse angles.

7. Which is the geometric term for angle $HJK$?
   - A Acute angle
   - B Obtuse angle
   - C Right angle
   - D Straight angle

8. Writing to Explain Describe an acute angle.
Lines, Rays, and Angles

Use geometric terms to describe what is shown. Be as specific as possible.

1. \[ \text{Ray} \]
2. \[ \text{Right angle} \]
3. \[ \text{Obtuse angle} \]
4. \[ \text{Line segment} \]

5. Name two line segments. 
   \[ AE, BD \]

6. Name two obtuse angles. 
   \[ \angle BCA, \angle DCE \]

7. Which is the geometric term for angle \( HJK \)?
   \[ A \quad \text{Acute angle} \quad C \quad \text{Right angle} \]
   \[ B \quad \text{Obtuse angle} \quad D \quad \text{Straight angle} \]

8. Writing to Explain Describe an acute angle.
   
   \[ \text{Sample answer: An acute angle is an angle which measures less than } 90^\circ. \]
Name ________________________________

Shapes in Shapes

Study the figure. Then answer each question.

1. How many triangles do you see in the figure? ________________
   Use the capital letters at the vertices to name them.
   ____________________________
   ____________________________
   ____________________________
   ____________________________

2. How many rectangles do you see in the figure? ________________
   Name them. ____________________________

3. How many of each type of angle are in the polygon?
   acute __________ obtuse __________ right __________

4. If you draw a line segment from each vertex to all possible vertices, what figure will be on the inside of the pentagon?
   ____________________________

5. If you cut the pentagon into two pieces, what different figures could you make?
   ____________________________
   ____________________________
   ____________________________

6. What is the name of the figure that is 36 inches around and that has equal sides, each 6 inches long?
   ____________________________

Visual Thinking
Shapes in Shapes

Study the figure. Then answer each question.

1. How many triangles do you see in the figure? 12
   Use the capital letters at the vertices to name them.
   \( \text{GAF, GAB, GBH, FBE, HEI, BEC, EID, CID, ABH, EHD, AFB, DEC} \)

2. How many rectangles do you see in the figure? 3
   Name them. \( \text{FGIE, GBCI, FBCE} \)

Use the figure at the right to answer Exercises 3 through 5.

3. How many of each type of angle are in the polygon?
   \( \text{acute } 1 \quad \text{obtuse } 2 \quad \text{right } 2 \)

4. If you draw a line segment from each vertex to all possible vertices, what figure will be on the inside of the pentagon?
   \( \text{A star} \)

5. If you cut the pentagon into two pieces, what different figures could you make?
   \( \text{Sample answer: A triangle and a square} \)

6. What is the name of the figure that is 36 inches around and that has equal sides, each 6 inches long?
   \( \text{A hexagon} \)
1. How much change would you get for a purchase of $7.67 if you paid with a $20 bill?
   A $10.62  
   B $11.33  
   C $12.33  
   D $12.62

2. Find $600 - 443$.
   A 157  
   B 167  
   C 257  
   D 267

3. Zoe had 10 cookies and made 6 more. Then she gave 8 away. Which expression indicates how many cookies Zoe has left?
   A $10 + (6 + 8)$  
   B $(10 + 6) - 8$  
   C $(12 - 10) + 8$  
   D $12 - (10 + 8)$

4. Which multiplication fact can help you find $32 \div 4$?
   A $2 \times 8$  
   B $3 \times 8$  
   C $4 \times 6$  
   D $4 \times 8$

5. Folger Elementary School had 236 students. Then, 7 more students came. Write a number sentence that shows the new number of students.

6. Write the word form for the shaded part.

7. Write the missing numbers.
   1, 3, 5, 7, ____, ____, ____

8. Compare $102,732 \bigcirc 103,832$. 

Topic 9  47
1. How much change would you get for a purchase of $7.67 if you paid with a $20 bill?
   A $10.62  
   B $11.33  
   C $12.33  
   D $12.62

2. Find 600 - 443.
   A 157  
   B 167  
   C 257  
   D 267

3. Zoe had 10 cookies and made 6 more. Then she gave 8 away. Which expression indicates how many cookies Zoe has left?
   A 10 + (6 + 8)  
   B (10 + 6) - 8  
   C (12 - 10) + 8  
   D 12 - (10 + 8)

4. Which multiplication fact can help you find 32 ÷ 4?
   A 2 × 8  
   B 3 × 8  
   C 4 × 6  
   D 4 × 8

5. Folger Elementary School had 236 students. Then, 7 more students came. Write a number sentence that shows the new number of students.
   \[ 236 + 7 = 243 \]

6. Write the word form for the shaded part.
   thirty hundredths

7. Write the missing numbers.
   1, 3, 5, 7, \underline{9}, 11, 13

8. Compare 102,732 < 103,832.
What type of angle are the hands of the clock creating?
1. Measure the angle shown.
   \[ \text{A} \ 30° \quad \text{B} \ 45° \quad \text{C} \ 135° \quad \text{D} \ 180° \]

2. Measure the angle shown.
   \[ \text{A} \ 90° \quad \text{B} \ 60° \quad \text{C} \ 45° \quad \text{D} \ 30° \]

3. Roberto cuts diagonally across a square field to go home from school. What angle does his path make with the edge of the field?
   \[ \text{A} \ 30° \quad \text{B} \ 45° \quad \text{C} \ 60° \quad \text{D} \ 90° \]

4. Writing to Explain Maya designed two roads that intersect in the middle. She drew the roads so that one of the angles at the intersection was 45°. What are the other angles at the intersection? Draw a picture.
1. Measure the angle shown.

   A 30°
   B 45°
   C 135°
   D 180°

2. Measure the angle shown.

   A 90°
   B 60°
   C 45°
   D 30°

3. Roberto cuts diagonally across a square field to go home from school. What angle does his path make with the edge of the field?

   A 30°
   B 45°
   C 60°
   D 90°

4. Writing to Explain Maya designed two roads that intersect in the middle. She drew the roads so that one of the angles at the intersection was 45°. What are the other angles at the intersection? Draw a picture.

   See student samples to the right.
Measuring Angles

An angle is formed by two rays that meet at a common endpoint called the vertex. The angle is measured in degrees (°).

An angle can be measured or created using a protractor.

To measure an angle:

Place the protractor’s center on the vertex of the angle, and the 0° mark on one of the angle’s rays. Read the number in degrees where the other ray of the angle crosses the protractor.

To create an angle:

Draw a dot to show the vertex of the angle. Place the center of the protractor on the vertex point. Draw another point at the 0° mark and another point at the angle degree mark. Draw rays from the vertex through the other points.

For Exercises 1 through 3, measure the angles.

1. 2. 3.

For Exercises 4 through 6, draw the angles.

4. 65°  5. 90°  6. 145°
Measuring Angles

An angle is formed by two rays that meet at a common endpoint called the vertex. The angle is measured in degrees (°).

An angle can be measured or created using a protractor.

**To measure an angle:**

Place the protractor’s center on the vertex of the angle, and the 0° mark on one of the angle’s rays. Read the number in degrees where the other ray of the angle crosses the protractor.

**To create an angle:**

Draw a dot to show the vertex of the angle. Place the center of the protractor on the vertex point. Draw another point at the 0° mark and another point at the angle degree mark. Draw rays from the vertex through the other points.

For Exercises 1 through 3, measure the angles.

1. 2. 3.

   ![Angles](image1)

   45° 125° 15°

For Exercises 4 through 6, draw the angles.

4. 65° 5. 90° 6. 145°

   ![Angles](image2)

   65° 90° 145°
Measuring Angles

For Exercises 1 through 4, measure the angle.

1. ________  2. ________  3. ________  4. ________

For Exercises 5 through 8, draw the angle:

5. 45°  6. 145°  7. 60°  8. 180°

9. Rich has 3 pieces of pizza. Each pizza end forms a 20° angle. If all of the pieces were placed together what would the size of the angle be?

10. Stuart, Sam, Sue, and Sally have equal-sized pieces of pie. When the 4 pieces are put together they form a 100° angle. What is the angle of each piece?

   A  100°   B  50°   C  25°   D  15°

11. Writing to Explain  Gail and her 3 friends all share half a pie. All the pieces in the pie put together make up 180°. Gail and her friends finish the pie and they each eat an equal piece. They believe each piece has an angle equal to 25°. Are their calculations correct? Explain.
Measuring Angles

For Exercises 1 through 4, measure the angle.

1. 55°  
2. 115°  
3. 90°  
4. 15°

For Exercises 5 through 8, draw the angle:

5. 45°  
6. 145°  
7. 60°  
8. 180°

9. Rich has 3 pieces of pizza. Each pizza end forms a 20° angle. If all of the pieces were placed together what would the size of the angle be? 60°

10. Stuart, Sam, Sue, and Sally have equal-sized pieces of pie. When the 4 pieces are put together they form a 100° angle. What is the angle of each piece?

A 100°  B 50°  C 25°  D 15°

11. Writing to Explain  Gail and her 3 friends all share half a pie. All the pieces in the pie put together make up 180°. Gail and her friends finish the pie and they each eat an equal piece. They believe each piece has an angle equal to 25°. Are their calculations correct? Explain.

No, 180° divided evenly among 4 people creates angles of 45°.
Name that Angle

Below is a circle with center point O. Each point on the outside of the circle connected to point O creates a line segment. Using point O as the vertex, many angles are created. Use the diagram to answer the following questions.

1. What is the measurement of \( \angle COD \)? ______
2. What is the measurement of \( \angle FOG \)? ______
3. What is the measurement of \( \angle COF \)? ______
4. What is the measurement of \( \angle EOC \)? ______
5. Does \( \angle EOC = \angle COE \)? What are their measurements?

6. Does \( \angle COA = \angle EOD \)? What are their measurements?

7. What is \( \angle EOG + \angle AOB \)? ______
8. What is \( \angle FOG + \angle COD \)? ______
9. Name the 3 angles that \( \angle EOD \) is equal to.
Name that Angle

Below is a circle with center point O. Each point on the outside of the circle connected to point O creates a line segment. Using point O as the vertex, many angles are created. Use the diagram to answer the following questions.

1. What is the measurement of $\angle COD$? $90^\circ$
2. What is the measurement of $\angle FOG$? $10^\circ$
3. What is the measurement of $\angle COF$? $145^\circ$
4. What is the measurement of $\angle EOC$? $180^\circ$
5. Does $\angle EOC = \angle COE$? What are their measurements?
   Yes, both are $180^\circ$
6. Does $\angle COA = \angle EOD$? What are their measurements?
   Yes, both are $90^\circ$
7. What is $\angle EOG + \angle AOB$? $110^\circ$
8. What is $\angle FOG + \angle COD$? $100^\circ$
9. Name the 3 angles that $\angle EOD$ is equal to.
   $\angle COD, \angle EOA, \angle AOC$
1. A bowling alley has 10 pins in each lane. There are 24 lanes. How many pins are in the bowling alley?
   A 24
   B 240
   C 2,400
   D 24,000

2. William has 143 books. How many books does he have, rounded to the nearest ten?
   A 200
   B 140
   C 110
   D 100

3. Juan drew the picture of a house shown below.

   Which part of the house appears to have an obtuse angle?
   A roof
   B walls
   C door
   D windows

4. At a camp there are 39 cabins. Each cabin has 6 windows. How many windows are there total?

5. Give the value of the underlined digit.
   3,697,002

6. Betty has 131 roses. She put 6 roses in each of 21 vases. How many roses does Betty have left over?
1. A bowling alley has 10 pins in each lane. There are 24 lanes. How many pins are in the bowling alley?
   A 24
   B 240
   C 2,400
   D 24,000

2. William has 143 books. How many books does he have, rounded to the nearest ten?
   A 200
   B 140
   C 110
   D 100

3. Juan drew the picture of a house shown below.
   Which part of the house appears to have an obtuse angle?
   A roof
   B walls
   C door
   D windows

4. At a camp there are 39 cabins. Each cabin has 6 windows. How many windows are there total?
   234

5. Give the value of the underlined digit.
   3,697,002
   Seven thousand

6. Betty has 131 roses. She put 6 roses in each of 21 vases. How many roses does Betty have left over?
   5
Devon drew three line segments. Two line segments share a common endpoint and both intersect the third line segment. Make a drawing similar to the one Devon drew.
1. Zack drew a polygon with 8 line segments. What kind of polygon did he draw?
   A hexagon
   B octagon
   C pentagon
   D triangle

2. Allison drew 3 triangles, 5 hexagons, and 4 octagons. How many line segments did she draw?
   A 81
   B 72
   C 71
   D 68

3. Harold drew 21 line segments. Which of the following is a possible number of polygons he drew?
   A 5 quadrilaterals
   B 3 octagons
   C 2 hexagons and 1 octagon
   D 5 triangles and 1 hexagon

4. Writing to Explain  Marcy has 18 toothpicks. Does she have enough to form 5 quadrilaterals if no quadrilateral shares a toothpick with another quadrilateral?
1. Zack drew a polygon with 8 line segments. What kind of polygon did he draw?
   A hexagon  
   B octagon  
   C pentagon  
   D triangle

2. Allison drew 3 triangles, 5 hexagons, and 4 octagons. How many line segments did she draw?
   A 81  
   B 72  
   C 71  
   D 68

3. Harold drew 21 line segments. Which of the following is a possible number of polygons he drew?
   A 5 quadrilaterals  
   B 3 octagons  
   C 2 hexagons and 1 octagon  
   D 5 triangles and 1 hexagon

4. Writing to Explain  Marcy has 18 toothpicks. Does she have enough to form 5 quadrilaterals if no quadrilateral shares a toothpick with another quadrilateral?  

See student samples to the right.
Polygons

Polygons are closed plane figures that are made up of line segments. All of the line segments connect. All of the sides of a polygon are straight, not curved.

Here are some common polygons. Note that the sides of polygons do not all have to be the same length.

<table>
<thead>
<tr>
<th>Polygon</th>
<th>Sides</th>
</tr>
</thead>
<tbody>
<tr>
<td>Octagon</td>
<td>8</td>
</tr>
<tr>
<td>Hexagon</td>
<td>6</td>
</tr>
<tr>
<td>Pentagon</td>
<td>5</td>
</tr>
<tr>
<td>Quadrilateral</td>
<td>4</td>
</tr>
<tr>
<td>Triangle</td>
<td>3</td>
</tr>
</tbody>
</table>

Draw an example of each type of polygon. How many sides and vertices does each one have?

1. Hexagon

2. Quadrilateral

3. Pentagon

4. Octagon

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Polygons are closed plane figures that are made up of line segments. All of the line segments connect. All of the sides of a polygon are straight, not curved.

Here are some common polygons. Note that the sides of polygons do not all have to be the same length.

Draw an example of each type of polygon. How many sides and vertices does each one have?

1. **Hexagon**
   6, 6

2. **Quadrilateral**
   4, 4

3. **Pentagon**
   5, 5

4. **Octagon**
   8, 8
Polygons

Draw an example of each polygon. How many sides and vertices does each one have?

1. Quadrilateral
2. Octagon
3. Hexagon

The map shows the shapes of buildings in Polygon Park. Identify the polygons that are lettered.

4. A
5. D
6. C
7. B
8. E
9. F

10. Which is the point where sides meet in a polygon?
   A edge  B endpoint  C side  D vertex

11. Writing to Explain  Describe two polygons by the number of vertices and sides each has.
Polygons

Draw an example of each polygon. How many sides and vertices does each one have?

1. Quadrilateral
   4; 4

2. Octagon
   8; 8

3. Hexagon
   6; 6

The map shows the shapes of buildings in Polygon Park. Identify the polygons that are lettered.

4. A Octagon
5. D Pentagon

6. C 10-sided polygon
7. B 12-sided polygon

8. E Quadrilateral
9. F Octagon

10. Which is the point where sides meet in a polygon?

   A edge  B endpoint  C side  D vertex

11. Writing to Explain Describe two polygons by the number of vertices and sides each has.

Sample answer:

A square has 4 sides and 4 vertices.
A pentagon has 5 of each.
Poly Shapes

Each figure is made of at least 2 polygons. Draw a line or lines to show the figures. Name each figure. Be specific.

1. 

2. 

3. 

4. 

5. 

6. 

Name ____________________________
Name ________________________________

**Poly Shapes** Sample answers

Each figure is made of at least 2 polygons. Draw a line or lines to show the figures. Name each figure. Be specific.

1. Square; rectangle

2. Parallelogram; rectangle

3. Trapezoid; equilateral triangle

4. Rhombus; acute triangle

5. Isosceles triangle; rectangle

6. Right triangle; pentagon
1. Luke bought a keychain for $0.58. He gave the cashier $1.00. How much change should he get back?
   A $0.52
   B $0.42
   C $0.32
   D $0.12

2. Mrs. Pierce has 100 coins in her collection. She keeps the coins in 5 boxes. Each box has the same number of coins. How many coins are in each box?
   A 20
   B 25
   C 30
   D 35

3. Lynette drew the figure shown below. What figure did Lynette draw?
   A pentagon
   B triangle
   C quadrilateral
   D hexagon

4. A restaurant bought 13 boxes of ketchup. Each box has 32 bottles of ketchup. Write and solve a number sentence using compatible numbers to estimate the number of bottles the restaurant purchased.

5. Which digit is in the hundreds place of 1,236?

6. A spider has 8 legs. How many legs do 6 spiders have?
1. Luke bought a keychain for $0.58. He gave the cashier $1.00. How much change should he get back?
   A $0.52  
   B $0.42  
   C $0.32  
   D $0.12

2. Mrs. Pierce has 100 coins in her collection. She keeps the coins in 5 boxes. Each box has the same number of coins. How many coins are in each box?
   A 20  
   B 25  
   C 30  
   D 35

3. Lynette drew the figure shown below.
   ![Hexagon]
   What figure did Lynette draw?
   A pentagon  
   B triangle  
   C quadrilateral  
   D hexagon

4. A restaurant bought 13 boxes of ketchup. Each box has 32 bottles of ketchup. Write and solve a number sentence using compatible numbers to estimate the number of bottles the restaurant purchased.
   \[10 \times 30 = 300\]

5. Which digit is in the hundreds place of 1,236?
   2

6. A spider has 8 legs. How many legs do 6 spiders have?
   48 legs
Marc made a polygon using the line segments $AB, BC, CD,$ and $DA$. What kind of polygon did Marc make? [Hint: Draw a picture.]
1. Norman drew a right triangle. Which triangle did he draw?

   A
   B
   C
   D

2. Ursula has 3 line segments that are the same size. What kind of triangle can she make?

   A equilateral triangle
   B isosceles triangle
   C scalene triangle
   D right triangle

3. Todd drew an isosceles triangle. Which of the following describes the triangle he drew?

   A

   A obtuse
   B acute
   C scalene
   D right

4. Writing to Explain Is it possible to make a triangle with 2 obtuse angles? Draw a picture to help explain your answer.
1. Norman drew a right triangle. Which triangle did he draw?
   A  
   B  
   C  
   D  

2. Ursula has 3 line segments that are the same size. What kind of triangle can she make?
   A equilateral triangle  
   B isosceles triangle  
   C scalene triangle  
   D right triangle  

3. Todd drew an isosceles triangle. Which of the following describes the triangle he drew?
   A obtuse  
   B acute  
   C scalene  
   D right  

4. Writing to Explain Is it possible to make a triangle with 2 obtuse angles? Draw a picture to help explain your answer.

See student samples to the right.
Triangles

Classify each triangle by its sides and then by its angles.

1. 
   - Equilateral triangle: All sides are the same length.
   - Isosceles triangle: At least two sides are the same length.
   - Scalene triangle: No sides are the same length.

2. 
   - Right triangle: One angle is a right angle.
   - Acute triangle: All three angles are acute angles.
   - Obtuse triangle: One angle is an obtuse angle.

3. 
4. 

Classify each triangle by its sides and then by its angles.

1. Scalene; right
2. Equilateral; acute
3. Isosceles; acute
4. Scalene; obtuse
Name ____________________________

**Triangles**

Classify each triangle by its sides and then by its angles.

1. 

2. 

3. 

Write the name of each triangle.

4. 

5. 

6. Which is a triangle with one right angle?
   - A Equilateral triangle
   - B Obtuse triangle
   - C Right triangle
   - D Acute triangle

7. **Writing to Explain** Why can’t a triangle have more than one obtuse angle?
   
   
   
   
   

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Name ____________________________

**Triangles**

Classify each triangle by its sides and then by its angles.

1. **Scalene right triangle**

2. **Isosceles obtuse triangle**

3. **Equilateral acute triangle**

Write the name of each triangle.

4. **Scalene acute triangle**

5. **Isosceles acute triangle**

6. Which is a triangle with one right angle?
   - A Equilateral triangle
   - B Obtuse triangle
   - C Right triangle
   - D Acute triangle

7. **Writing to Explain** Why can’t a triangle have more than one obtuse angle?
   
   **Sample answer:** The three lines of a triangle will not meet if there are 2 obtuse angles.
The Mixed Up Patterns

Draw or write what comes next in the patterns below.

1. 10, △, 12, △△, 14, △△△, __, __

2. ★ ★, ★ ★, 24, ★ ★, 12, ★ ★, 6, __, __

3. A, B, C, D, E, F, G, H, ______________

4. ○○○, ○○, ○, 200, ○○, 150, ○○, 100, _____, _____

5. 555, 44P, 666, 33Q, ______, ______

6. XXOX, XOOX, XXOX, _____________, ________

7. □, 99, □, 88, □, ____, _____

8. 13, ↑10, 23, ↑100, 123, __________, _____
The Mixed Up Patterns

Draw or write what comes next in the patterns below.

1. 10, △, 12, △△, 14, △△△, 16, △△△△

2. ⭐⭐, 24, ⭐⭐, 12, ⭐⭐, 6, ⭐, 3

3. A₁B₂, C₁D₂, E₁F₂, G₁H₂, I₁J₂

4. ⬜️, 200, ⬜️, 150, ⬜️, 100, ⬜️, 50

5. 555, 44P, 666, 33Q, 777, 22R

6. XXOX, XOOX, XXOX, XOOX, XXOX

7. □️, 99, □️, 88, □️, 77, □️

8. 13, ↑10, 23, ↑100, 123, ↑1,000, 1,123
1. Mrs. Jackson has 806 CDs. How many CDs does she have rounded to the nearest ten?
   A 800  
   B 805  
   C 810  
   D 900

2. Harvey can read 17 pages in one hour. In one month, he spent 12 hours reading. How many pages did Harvey read that month?
   A 204  
   B 194  
   C 104  
   D 51

3. John has $0.72. His sister has $0.21. How much do they have together?
   A $0.63  
   B $0.73  
   C $0.83  
   D $0.93

4. What type of triangle is shown?

5. Wendell has 213 popsicle sticks. He uses 114 popsicle sticks to make a model house. How many does he have left over?

6. Draw a hexagon.
1. Mrs. Jackson has 806 CDs. How many CDs does she have rounded to the nearest ten?
   A  800
   B  805
   C  810
   D  900

2. Harvey can read 17 pages in one hour. In one month, he spent 12 hours reading. How many pages did Harvey read that month?
   A  204
   B  194
   C  104
   D  51

3. John has $0.72. His sister has $0.21. How much do they have together?
   A  $0.63
   B  $0.73
   C  $0.83
   D  $0.93

4. What type of triangle is shown?
   Scalene right triangle

5. Wendell has 213 popsicle sticks. He uses 114 popsicle sticks to make a model house. How many does he have left over?
   99

6. Draw a hexagon.
Stacey drew a triangle with 3 line segments. What information do you need in order to find out what kind of triangle Stacey drew?
1. Rick drew a rhombus. What other term could you use to describe what Rick drew based on what you know about quadrilaterals?
   - A parallelogram
   - B pentagon
   - C trapezoid
   - D hexagon

2. Sally drew a quadrilateral. Which of the following must be true about what Sally drew?
   - A The opposite sides are parallel.
   - B Each side is the same length.
   - C There are 4 right angles.
   - D There are 4 sides.

3. Lacey drew a trapezoid. Which of the following must be true about what Lacey drew?

   ![Trapezoid Diagram]

   - A There is at least 1 right angle.
   - B One pair of sides is parallel.
   - C There are no right angles.
   - D Three of the sides are the same length.

4. Writing to Explain Describe why a square is also a rhombus, a rectangle, a parallelogram, and a quadrilateral.
1. Rick drew a rhombus. What other term could you use to describe what Rick drew based on what you know about quadrilaterals?

A parallelogram  
B pentagon  
C trapezoid  
D hexagon

3. Lacey drew a trapezoid. Which of the following must be true about what Lacey drew?

A There is at least 1 right angle.  
B One pair of sides is parallel.  
C There are no right angles.  
D Three of the sides are the same length.

4. Writing to Explain Describe why a square is also a rhombus, a rectangle, a parallelogram, and a quadrilateral.

See student samples to the right.
Quadrilaterals

Square
There are four right angles. All sides are the same length.

Rectangle
There are four right angles.

Parallelogram
Opposite sides are parallel.

Rhombus
Opposite sides are parallel and all sides are the same length.

Trapezoid
There is only one pair of parallel sides.

Quadrilateral
A polygon with 4 sides.

Write the name of each quadrilateral.
1. 
2. 
3. 
4. 

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Quadrilaterals

Square
There are four right angles. All sides are the same length.

Rectangle
There are four right angles.

Parallelogram
Opposite sides are parallel.

Rhombus
Opposite sides are parallel and all sides are the same length.

Trapezoid
There is only one pair of parallel sides.

Quadrilateral
A polygon with 4 sides.

Write the name of each quadrilateral.

1. ________________
2. ________________
3. ________________
4. ________________
Quadrilaterals

Write all the names you can use for each quadrilateral.

1. 

2. 

3. 

4. 

5. 

6. Which is NOT a quadrilateral?
   A rhombus  B rectangle  C right triangle  D trapezoid

7. Writing to Explain Explain why a square can never be a trapezoid.

   _______________________________________________________
   _______________________________________________________
   _______________________________________________________
Quadrilaterals

Write all the names you can use for each quadrilateral.

1. Square, parallelogram, rhombus, rectangle
2. Rectangle, parallelogram
3. Parallelogram
4. Trapezoid
5. Rhombus, parallelogram

6. Which is NOT a quadrilateral?
   A rhombus   B rectangle   C right triangle   D trapezoid

7. Writing to Explain Explain why a square can never be a trapezoid.
   Sample answer: A square cannot be a trapezoid because it has two pairs of parallel sides.
Doodles

Darius made this doodle while talking on the phone. Name each shape Darius drew. Be as specific as possible.

A
B
C
D
E
F
G
H
I
J
K
L
M

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Doodles

Darius made this doodle while talking on the phone. Name each shape Darius drew. Be as specific as possible.

A

Square

Right isosceles triangle

Square

Trapezoid

Rectangle

Right isosceles triangle

Square

Rectangle

Isosceles obtuse triangle

Rhombus

Equilateral acute triangle

Isosceles obtuse triangle

Parallelogram
1. The table below shows how much money four family members spent on their vacation.

<table>
<thead>
<tr>
<th>Name</th>
<th>Amount Spent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brenda</td>
<td>$16.70</td>
</tr>
<tr>
<td>Kirk</td>
<td>$17.76</td>
</tr>
<tr>
<td>Allison</td>
<td>$61.70</td>
</tr>
<tr>
<td>Lee</td>
<td>$17.60</td>
</tr>
</tbody>
</table>

Which of the following shows the money amounts in order from greatest to least?

A) $17.60, $16.70, $61.70, $17.76  
B) $61.70, $17.76, $16.70, $17.60  
C) $16.70, $17.60, $17.76, $61.70  
D) $61.70, $17.76, $17.60, $16.70

2. Tyler drew a line with chalk that was 5 feet long. How many inches are in five feet?

A) 12  
B) 36  
C) 48  
D) 60

3. Where would placing the number 7 make the number sentence true?

A) \(9 \times \square = 72\)  
B) \(\square \times 8 = 56\)  
C) \(4 \times \square = 48\)  
D) \(\square \times 7 = 77\)

4. What is \(\frac{5}{18}\) in simplest form?

\[\frac{5}{18}\]

5. Taryn cuts a triangle, a square, and a pentagon out of wood. The first shape she cuts has more sides than the second but fewer sides than the third. In what order does she cut the shapes?

\[\text{Order: pentagon, square, triangle}\]

6. The Kings County school district has 487 fourth-grade students. Of these, 251 are girls. How many fourth graders are boys?

\[487 - 251 = 236\]
1. The table below shows how much money four family members spent on their vacation.

<table>
<thead>
<tr>
<th>Name</th>
<th>Amount Spent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brenda</td>
<td>$16.70</td>
</tr>
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<td>$17.76</td>
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<td>$61.70</td>
</tr>
<tr>
<td>Lee</td>
<td>$17.60</td>
</tr>
</tbody>
</table>

Which of the following shows the money amounts in order from greatest to least?

A $17.60, $16.70, $61.70, $17.76  
B $61.70, $17.76, $16.70, $17.60  
C $16.70, $17.60, $17.76, $61.70  
D $61.70, $17.76, $17.60, $16.70

2. Tyler drew a line with chalk that was 5 feet long. How many inches are in five feet?
   A 12  
   B 36  
   C 48  
   D 60

3. Where would placing the number 7 make the number sentence true?
   A $9 \times \square = 72$  
   B $\square \times 8 = 56$  
   C $4 \times \square = 48$  
   D $\square \times 7 = 77$

4. What is $\frac{5}{12}$ in simplest form?  
   $\frac{1}{3}$

5. Taryn cuts a triangle, a square, and a pentagon out of wood. The first shape she cuts has more sides than the second but fewer sides than the third. In what order does she cut the shapes?  
   **Square, triangle, pentagon**

6. The Kings County school district has 487 fourth-grade students. Of these, 251 are girls. How many fourth graders are boys?  
   **236**
Complete the table to classify each solid. Be as specific as possible.

<table>
<thead>
<tr>
<th>Solid Figure</th>
<th>Faces</th>
<th>Edges</th>
<th>Vertices</th>
<th>Shape(s) of Faces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cube</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Square Pyramid</td>
<td></td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Triangular Prism</td>
<td></td>
<td>9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. Which generalizations can you make about these polygons?

A Each shape is a quadrilateral with sides of the same length.
B Each shape is a quadrilateral with at least 1 pair of opposite sides that are parallel.
C Each shape is a quadrilateral with 4 right angles.
D All quadrilaterals are parallelograms.

2. Which generalizations can you make about these triangles?

A All triangles have 1 right angle.
B All triangles have 3 angles and 3 sides.
C All sides of a triangle are equal in length.
D All the angles of a triangle are equal.

3. **Writing to Explain** Draw a right triangle and an equilateral triangle. Describe how the angles in each are similar and different.

_________________________________________________________

_________________________________________________________

_________________________________________________________
1. Which generalizations can you make about these polygons?

   A Each shape is a quadrilateral with sides of the same length.
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3. Writing to Explain  Draw a right triangle and an equilateral triangle. Describe how the angles in each are similar and different.

   See student samples to the right.
Problem Solving: Make and Test Generalizations

When you make a generalization, you make a broad statement about something that a group has in common. A generalization helps you find patterns. When you make a generalization, it is important to test it to be sure it is correct.

**Example:**

\[
\begin{align*}
1 \times 24 &= 24 \\
1 \times 93 &= 93 \\
1 \times 126 &= 126
\end{align*}
\]

**Generalization:** A number multiplied by 1 is itself.

**Test:** If I multiply a different number by 1, it is also equal to itself. For example, \(1 \times 2 = 2\); \(1 \times 3 = 3\); \(1 \times 4 = 4\), etc.; any number multiplied by 1 is itself. My generalization is correct.

In some cases, it is possible to find more than one correct generalization:

**Example:** Jessica found a red pencil, 3 red pens, and 2 red markers in her backpack.

**Generalization #1:** The things Jessica found are all writing instruments.

**Generalization #2:** The things Jessica found are all red.

**Test:** I can write with a pencil, a pen, and a marker. Also, the pencil, the pens, and the markers are all red. My generalizations are correct.

1. Randy has 2 tennis balls, 6 marbles, and 1 orange in his desk drawer. What generalization can you make about these things?

2. This week, Sandy was out sick on Monday and Tuesday. Last week, Jared was out sick on Thursday and Friday. The week before, Elisa was out sick on Wednesday and Thursday. What generalization can you make about these three students’ absences? Can you make a second generalization?

3. Write down the multiples of 15, 20, and 25. What generalization can you make about all multiples of 5?
Problem Solving: Make and Test Generalizations

When you make a generalization, you make a broad statement about something that a group has in common. A generalization helps you find patterns. When you make a generalization, it is important to test it to be sure it is correct.

Example: $1 \times 24 = 24 \quad 1 \times 93 = 93 \quad 1 \times 126 = 126$

Generalization: A number multiplied by 1 is itself.

Test: If I multiply a different number by 1, it is also equal to itself. For example, $1 \times 2 = 2; 1 \times 3 = 3; 1 \times 4 = 4$, etc.; any number multiplied by 1 is itself. My generalization is correct.

In some cases, it is possible to find more than one correct generalization:

Example: Jessica found a red pencil, 3 red pens, and 2 red markers in her backpack.

Generalization #1: The things Jessica found are all writing instruments.

Generalization #2: The things Jessica found are all red.

Test: I can write with a pencil, a pen, and a marker. Also, the pencil, the pens, and the markers are all red. My generalizations are correct.

1. Randy has 2 tennis balls, 6 marbles, and 1 orange in his desk drawer. What generalization can you make about these things?

**They are all round.**

2. This week, Sandy was out sick on Monday and Tuesday. Last week, Jared was out sick on Thursday and Friday. The week before, Elisa was out sick on Wednesday and Thursday. What generalization can you make about these three students’ absences? Can you make a second generalization?

**They were each out sick for 2 days; Yes, they were all absent because they were sick.**

3. Write down the multiples of 15, 20, and 25. What generalization can you make about all multiples of 5?

**Sample answer: All multiples end in 5 or 0.**
Problem Solving: 
Make and Test Generalizations

For Exercises 1 through 3, use the images to make a generalization and test your answer.

1.

2.

3.

4. Which statement below is a good generalization about all polygons?

   A All polygons have right angles.
   B All polygons are closed figures.
   C All polygons have parallel sides.
   D All polygons are quadrilaterals.

5. Writing to Explain Try to draw a triangle with 2 right or obtuse angles. What generalizations can you make about the angles of a triangle? Explain.
Problem Solving: Make and Test Generalizations

For Exercises 1 through 3, use the images to make a generalization and test your answer.

1. All shapes are quadrilaterals because they all have 4 sides.

2. All shapes have at least 2 acute angles.

3. All shapes are rectangles because they have 4 sides and 4 right angles.

4. Which statement below is a good generalization about all polygons?
   A. All polygons have right angles.
   B. All polygons are closed figures.
   C. All polygons have parallel sides.
   D. All polygons are quadrilaterals.

5. Writing to Explain Try to draw a triangle with 2 right or obtuse angles. What generalizations can you make about the angles of a triangle? Explain.
   Sample answer: A triangle will never have more than 1 right or obtuse angle.
Make Hundreds

When you add, use mental math. Mental math helps find tens and hundreds.

Look at each number in the puzzle board. Find two numbers in the box whose sum equals that number. You can use each number only once. Do not use pencil and paper to do the calculations.

<p>| | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<th></th>
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</thead>
<tbody>
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<td>253</td>
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<td>305</td>
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<td>495</td>
<td>85</td>
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<td>415</td>
<td>147</td>
<td>411</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Puzzle Board</th>
</tr>
</thead>
<tbody>
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</tr>
<tr>
<td>200</td>
</tr>
<tr>
<td>300</td>
</tr>
<tr>
<td>400</td>
</tr>
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<tr>
<td>700</td>
</tr>
<tr>
<td>800</td>
</tr>
<tr>
<td>900</td>
</tr>
</tbody>
</table>

What clues did you use to solve this puzzle?
Make Hundreds

When you add, use mental math. Mental math helps find tens and hundreds.

Look at each number in the puzzle board. Find two numbers in the box whose sum equals that number. You can use each number only once. Do not use pencil and paper to do the calculations.

What clues did you use to solve this puzzle?

Check students’ methods. Students should be making hundreds.
1. Tom put 6 toothpicks in the pattern below. Which toothpick is parallel to toothpick \( U \)? (9-1)

2. Which type of angle is shown below? (9-2)

3. Which geometric terms best describe the triangle? (9-5)

4. Which polygon has less than 4 vertices? (9-4)

5. Malcolm used 4 equal-sized sticks to build a two-dimensional figure with at least one set of parallel sides. Which could be his figure? (9-1)
1. Tom put 6 toothpicks in the pattern below. Which toothpick is parallel to toothpick $U$? (9-1)

2. Which type of angle is shown below? (9-2)

3. Which geometric terms best describe the triangle? (9-5)

4. Which polygon has less than 4 vertices? (9-4)

5. Malcolm used 4 equal-sized sticks to build a two-dimensional figure with at least one set of parallel sides. Which could be his figure? (9-1)
Name ____________________________

Give each answer.

Use geometric terms to describe what is shown.

1. ________

2. ________

3. ________

4. ________

5. Name a right angle. ________

6. Name a ray. ________

7. Name an obtuse angle. ________

8. Name a straight angle. ________

9. Name a line segment. ________

10. Name an acute angle. ________

Use the figure below for Exercises 5 through 10.

5. ________

6. ________

7. ________

8. ________

9. ________

10. ________
Name ________________________________

Give each answer.

Use geometric terms to describe what is shown.

1. \( \overline{AB} \) and \( \overline{XY} \) are ______
   - parallel lines

2. \( \bullet F \)
   - point

3. \( \overrightarrow{GH} \) and \( \overrightarrow{HS} \) are ______
   - perpendicular lines

4. \( \triangle KLM \)
   - Sample answer: plane

Use the figure below for Exercises 5 through 10.

5. Name a right angle.
   - Sample answer: \( \angle PZD \)

6. Name a ray.
   - Sample answer: \( \overrightarrow{ZV} \)

7. Name an obtuse angle.
   - Sample answer: \( \angle CZV \)

8. Name a straight angle.
   - \( \angle CZD \)

9. Name a line segment.
   - Sample answer: \( \overline{ZD} \)

10. Name an acute angle.
    - Sample answer: \( \angle SZV \)
Mrs. Sweeney made some shape patterns for the students to use in art class.

1. List the letters of the shapes that match each description. Some shapes will be listed more than once.

- □ equilateral triangle
- □ hexagon
- □ square
- □ parallelogram
- □ pentagon
- □ rectangle
- □ isosceles triangle

2. How many triangles are there in all? How many quadrilaterals? ______________

3. Which shapes have parallel lines? Which triangles have acute angles? Which triangles have obtuse angles?

______________________________

4. On a separate sheet of paper, create a design using the shape pattern pieces shown above. Also include line segments and rays in the design. Color your design, using no more than three different colors.

5. Write a paragraph that describes your design. Don’t forget to tell about the shapes!

______________________________

______________________________

______________________________

82 Topic 9
Mrs. Sweeney made some shape patterns for the students to use in art class.

1. List the letters of the shapes that match each description.
   Some shapes will be listed more than once.
   - C \_ \_ \_ equilateral triangle
   - A, B \_ \_ \_ square
   - G \_ \_ \_ pentagon
   - C, D, E \_ \_ \_ isosceles triangle
   - H \_ \_ \_ hexagon
   - B, I, A, F \_ \_ \_ parallelogram
   - B, F, A \_ \_ \_ rectangle

2. How many triangles are there in all? How many quadrilaterals? \_ \_ \_ \_ \_ \_ \_ 3, 4

3. Which shapes have parallel lines? Which triangles have acute angles? Which triangles have obtuse angles?
   \_ \_ \_ \_ \_ \_ \_ A, B, F, I, H; C, D, E; E

4. On a separate sheet of paper, create a design using the shape pattern pieces shown above. Also include line segments and rays in the design. Color your design, using no more than three different colors. See below.

5. Write a paragraph that describes your design. Don’t forget to tell about the shapes!
   See below.