Name Key Date

1. Use the following directions to draw a figure in the box to the right.

   a. Draw two points: W and X.

   b. Use a straightedge to draw $\overleftrightarrow{WX}$.

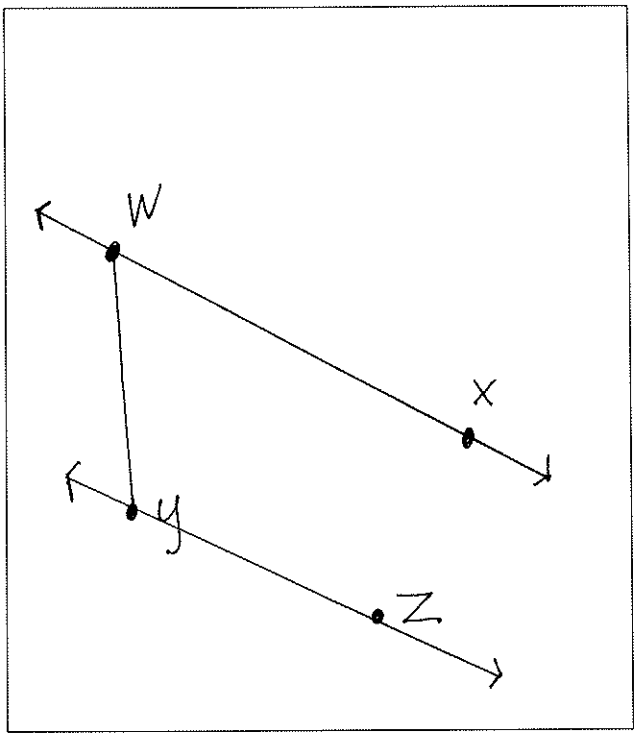
   c. Draw a new point that is not on $\overleftrightarrow{WX}$. Label it Y.

   d. Draw $\overline{WY}$.

   e. Draw a point not on $\overleftrightarrow{WX}$. or $\overline{WY}$. Call it Z.

   f. Construct $\overleftrightarrow{YZ}$.

Possible Solution



2. Use the following directions to draw a figure in the box to the right.

   a. Draw two points: W and X.

   b. Use a straightedge to draw $\overline{WX}$.

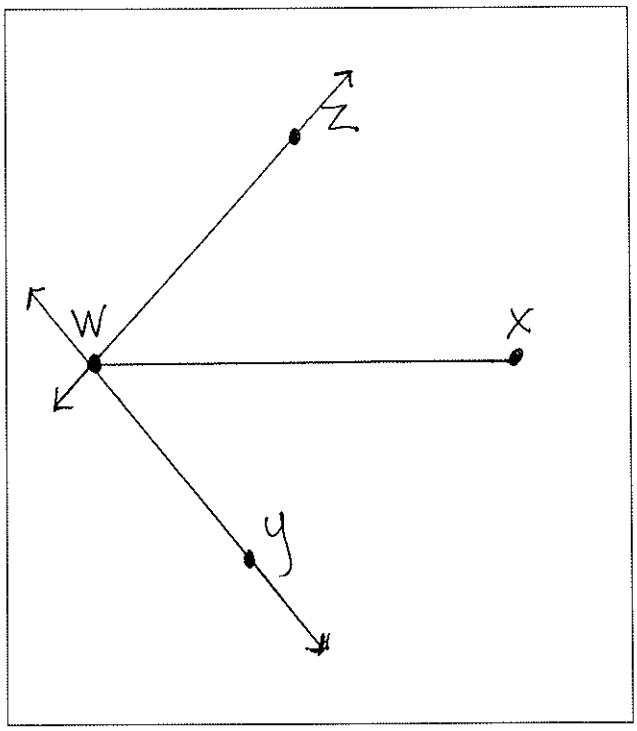
   c. Draw a new point that is not on $\overline{WX}$. Label it Y.

   d. Draw $\overleftrightarrow{WY}$.

   e. Draw a new point that is not on $\overleftrightarrow{WY}$ or on the line containing $\overline{WX}$. Label it Z.

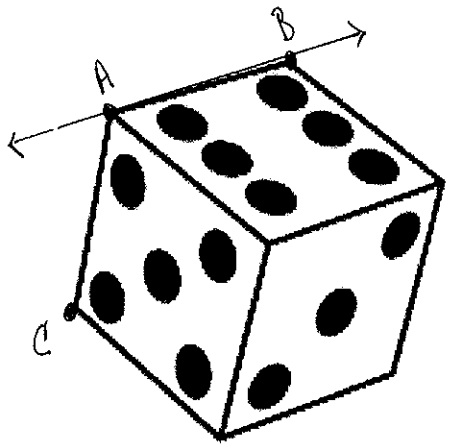
   f. Construct $\overleftrightarrow{WZ}$.

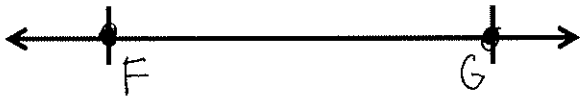
Possible Solution



3. a. Observe the familiar figures below. Label some points on each figure. Extend segments to show lines.

   b. Use those points to label and name representations of each of the following in the table below.





	Die	Number line
Point	C	F
Line	$\overleftrightarrow{AB}$	$\overleftrightarrow{FG}$
Line segment	$\overline{AC}$	$\overline{FG}$

Name Key Date _____

1. Use the following directions to draw a figure in the box below.

   a. Draw two points: W and X.

   b. Use a straightedge to draw ray $\overrightarrow{WX}$.

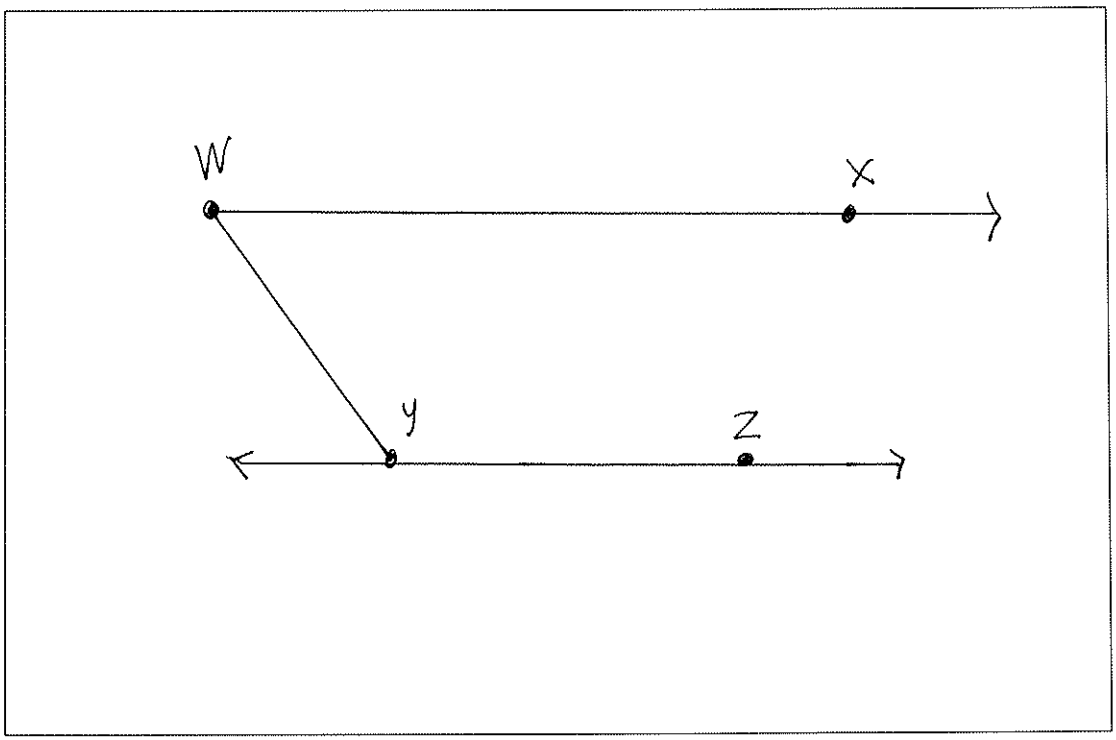
   c. Draw a new point that is not on ray $\overrightarrow{WX}$. Label it Y.

   d. Draw line segment $\overline{WY}$.

   e. Draw a point not on ray $\overrightarrow{WX}$ or line segment $\overline{WY}$. Call it Z.

   f. Construct line $\overleftrightarrow{YZ}$.

   g. Use the points you've already labeled to name one angle. $\angle WYZ$ (example)



2. Use the following directions to draw a figure in the box below.

   a. Draw two points: W and X.

   b. Use a straightedge to draw line segment $\overline{WX}$.

   c. Draw a new point that is not on line segment $\overline{WX}$. Label it Y.

   d. Draw ray $\overrightarrow{WY}$.

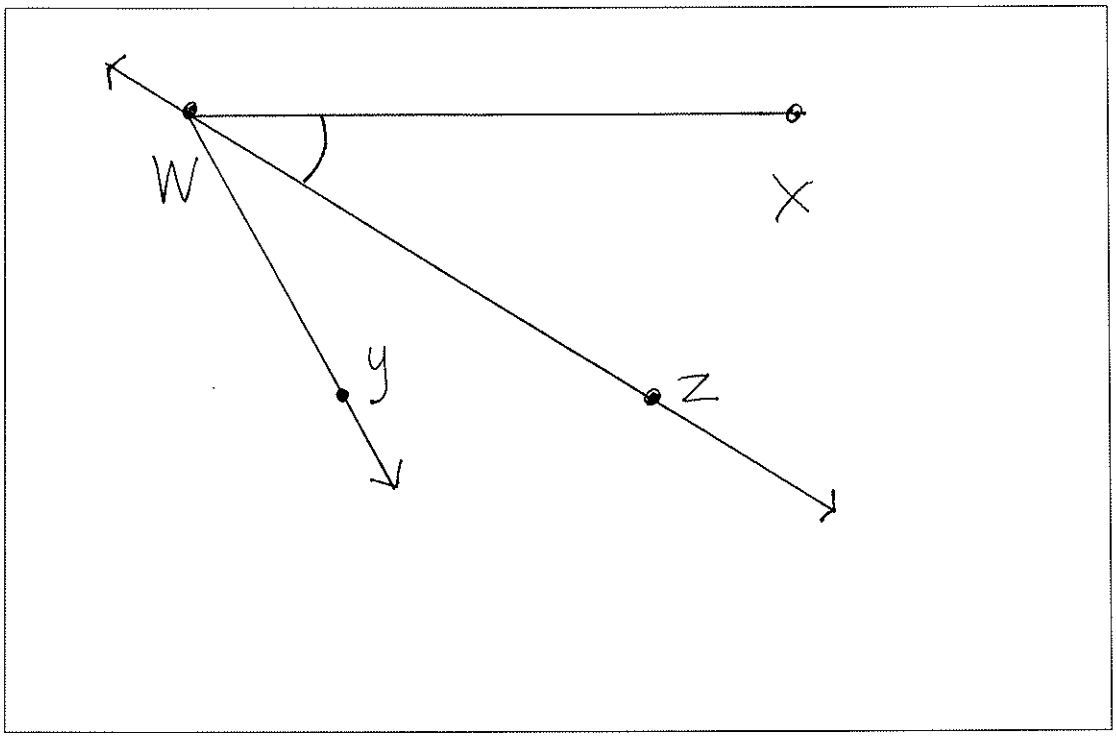
   e. Draw a new point that is not on ray $\overrightarrow{WY}$ or on the line containing line segment $\overline{WX}$. Label it Z.

   f. Construct line $\overleftrightarrow{WZ}$.

   g. Identify $\angle ZWX$ by drawing an arc to indicate the position of the angle.

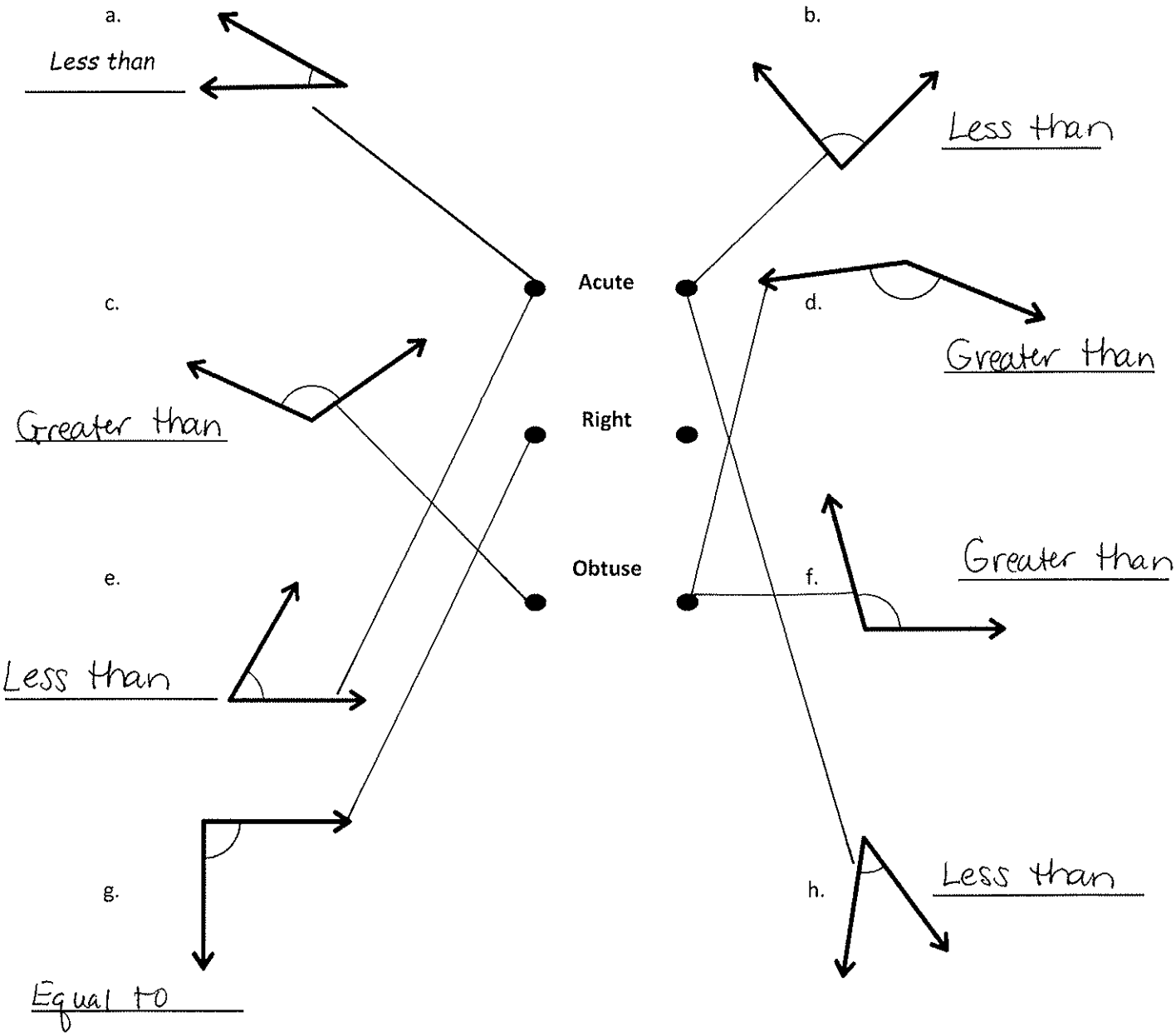
   h. Identify another angle by using points that you have already drawn.

   ∠ y W X

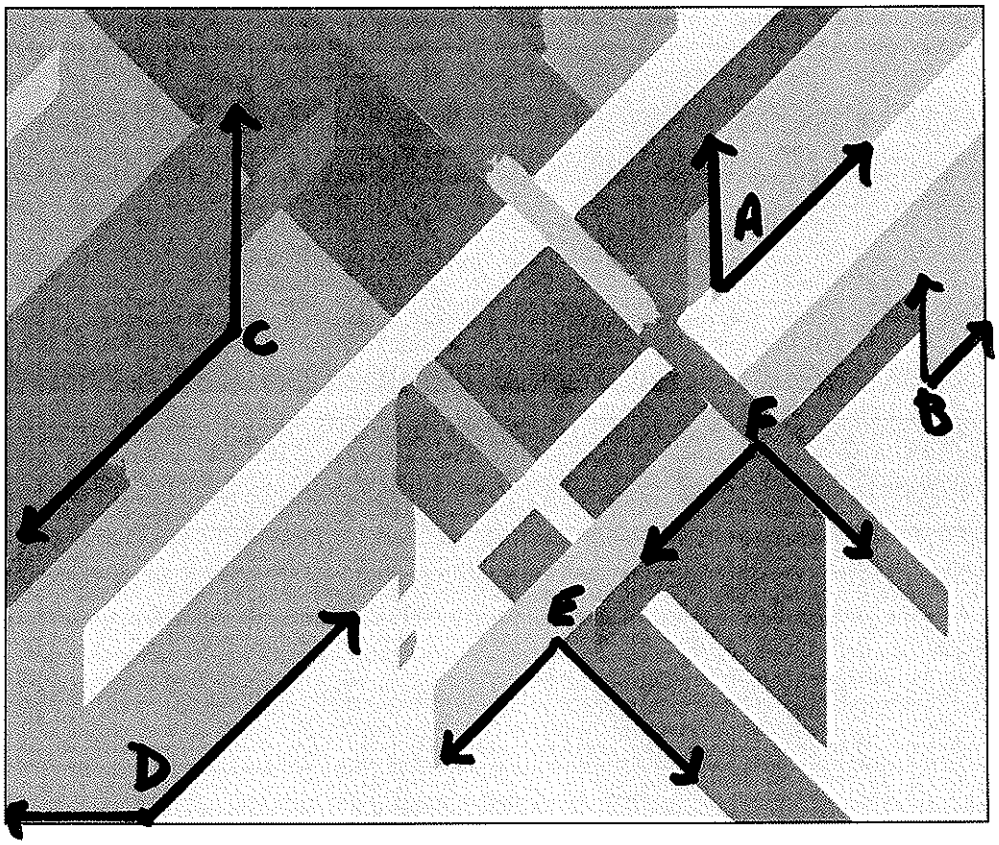


Name Key Date

1. Use the right angle template that you made in class to determine if each of the following angles is greater than, less than, or equal to a right angle. Label each as *greater than*, *less than,* or *equal to*, and then connect each angle to the correct label of acute, right, or obtuse. The first one has been completed for you.



4. 2. Use your right angle template to identify acute, obtuse, and right angles within the picture below. Trace at least two of each, label with points, and then name them in the table below the painting.

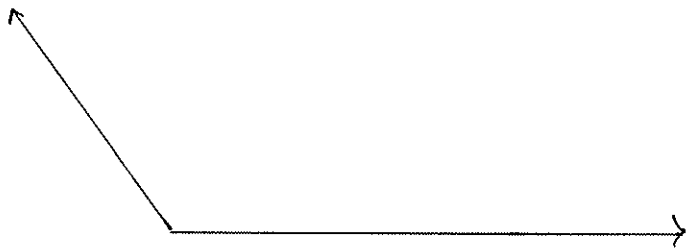


Acute angle	∠A	∠B
Obtuse angle	∠C	∠D
Right angle	∠E	∠F

(examples)

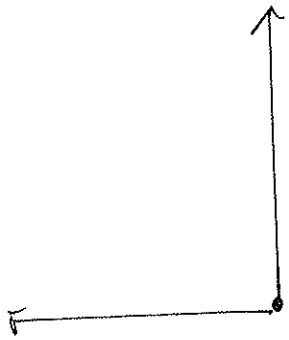
2. Construct each of the following using a straightedge and the right angle template that you created. Explain the characteristics of each by comparing the angle to a right angle. Use the words *greater than, less than,* or *equal to* in your explanations.

a. Obtuse angle



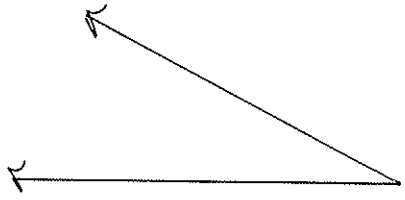
An obtuse angle is greater than a right angle.

b. Right angle



A right angle is equal to a right angle.

c. Acute angle

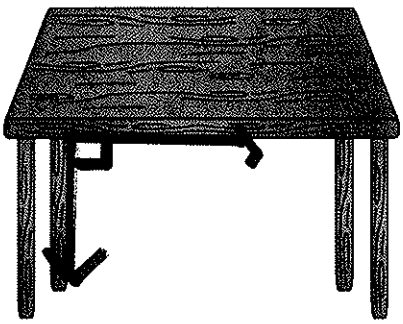


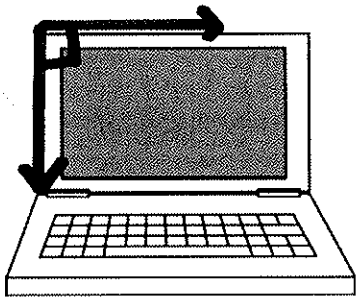
An acute angle is less than a right angle.

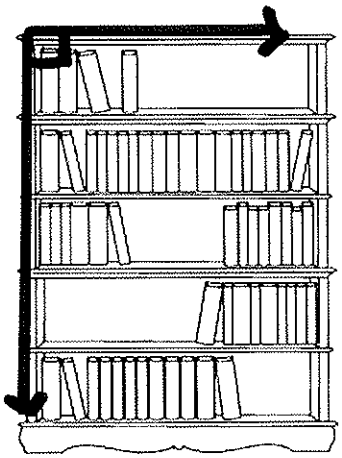
Name Key Date

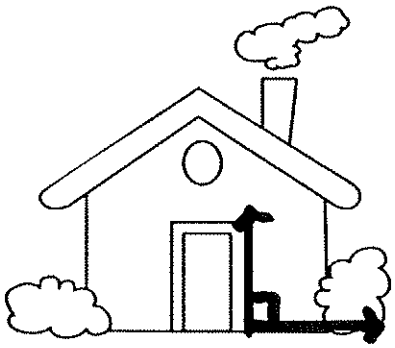
1. On each object, trace one pair of lines that appear to be perpendicular.

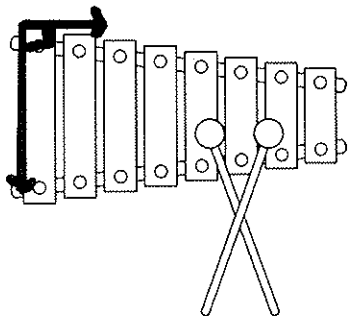
(examples)

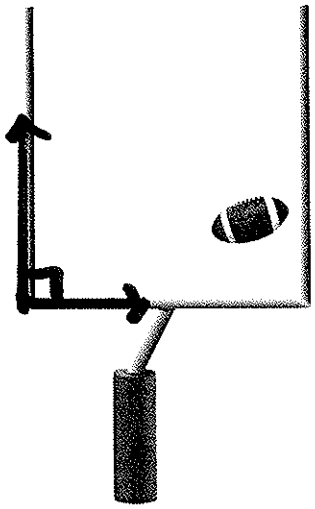








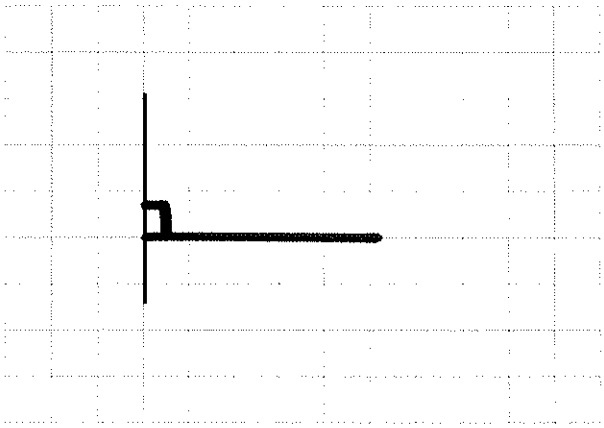


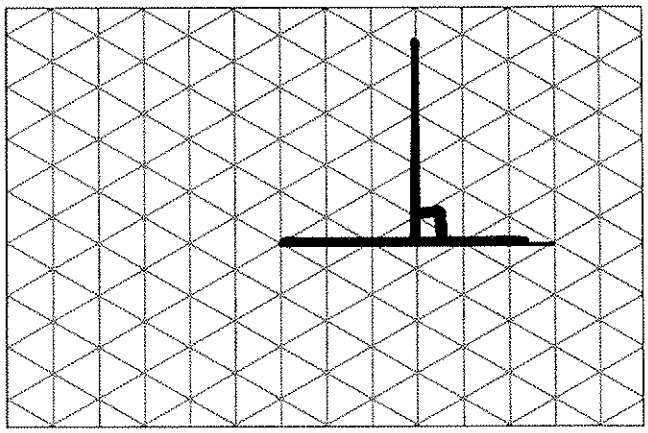


2. How do you know if two lines are perpendicular?

Two lines are perpendicular if they form right angles where they meet.

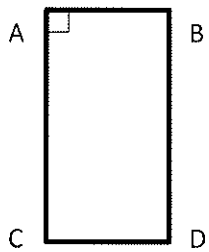
3. In the grids below, use the given segments in each grid to draw a line that is perpendicular. Use a straightedge.





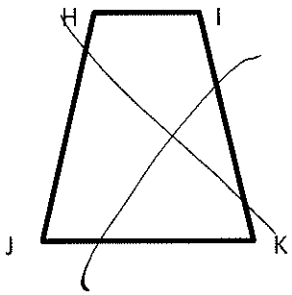
7. Use the right angle template that you created in class to determine which of the following figures have a right angle. Mark a right angle with a small square. Name a pair of perpendicular lines if the shape has right angles. Cross out shapes with no perpendicular lines. (The first problem has been started for you.)

a.

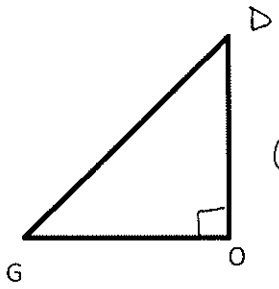


$\overline{AB} \perp \overline{AC}$

b.

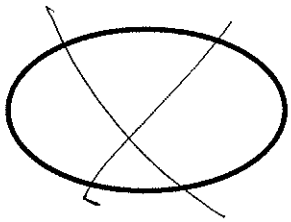


c.

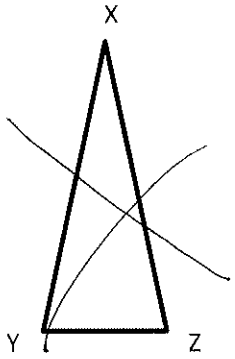


$\overline{GO} \perp \overline{OD}$

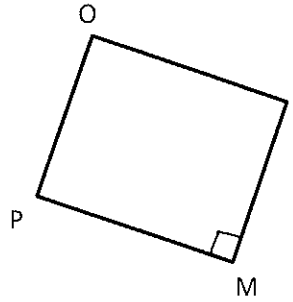
d.



e.

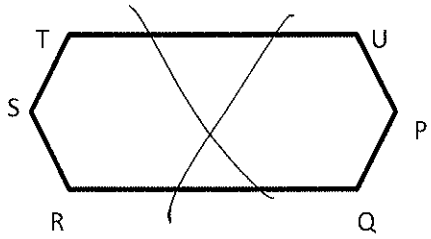


f.

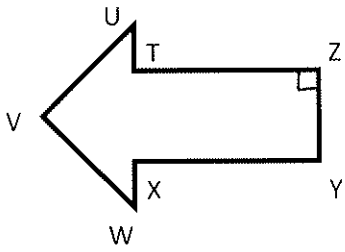


$\overline{PM} \perp \overline{MN}$

g.

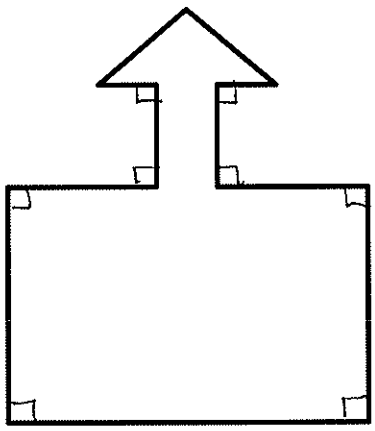


h.



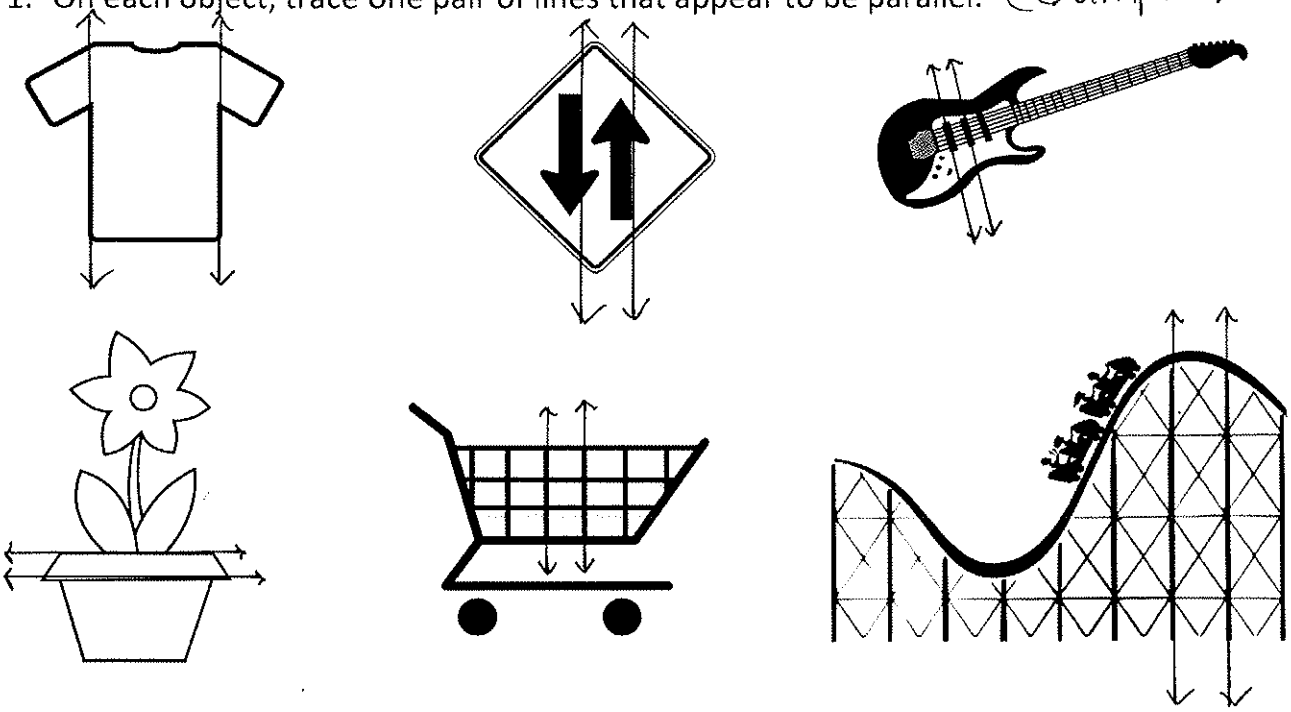
$\overline{TZ} \perp \overline{ZY}$

5. Use your right angle template as a guide, and mark each right angle in the following figure with a small square. (Note: A right angle does not have to be inside the figure.)



Name Key Date

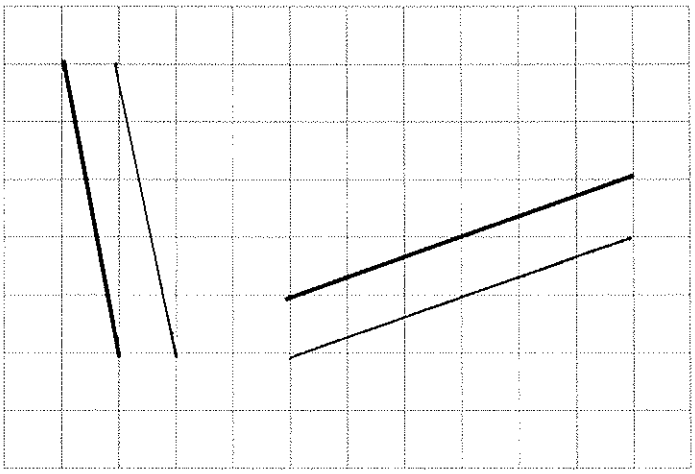
1. On each object, trace one pair of lines that appear to be parallel. (examples)

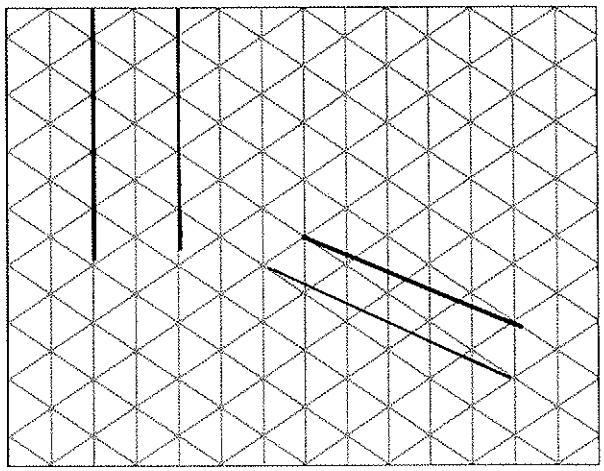


2. How do you know if two lines are parallel?

Lines are parallel if the stay the same distance apart and never cross each other.

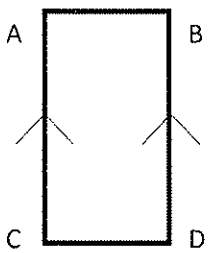
3. In the grids below, use the segments in each grid to draw a line that is parallel.





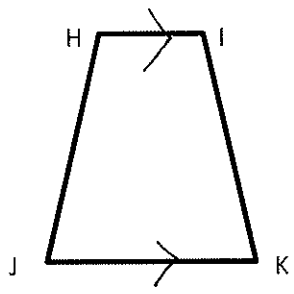
4. Determine which of the following figures have lines that are parallel. Mark a pair of parallel lines with arrowheads, and then identify the parallel lines with a statement. Cross off shapes that do not have parallel lines.

a.



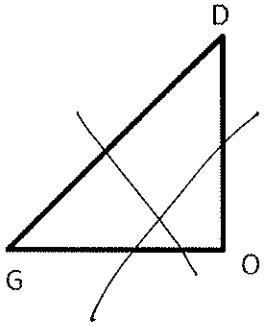
$\overline{AB} \parallel \overline{BD}$

b.

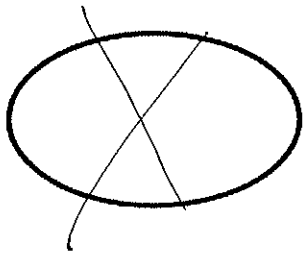


$\overline{HI} \parallel \overline{JK}$

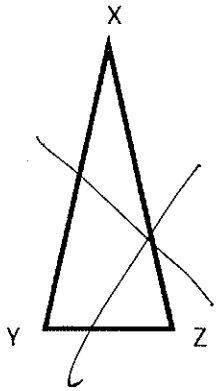
c.



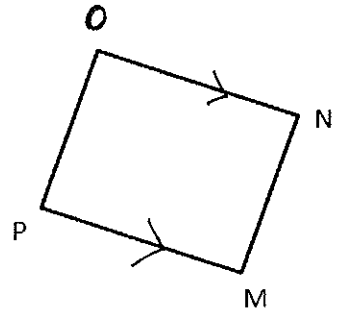
d.



e.

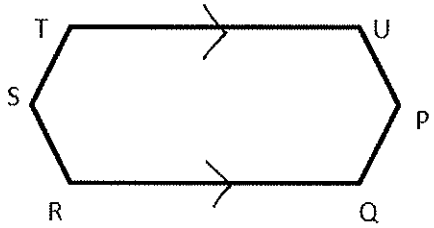


f.



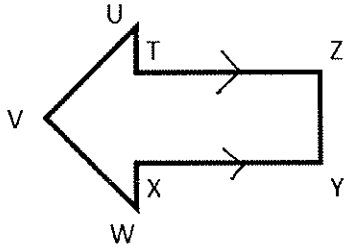
$\overline{ON} \parallel \overline{PM}$

g.



$\overline{TU} \parallel \overline{RQ}$

h.

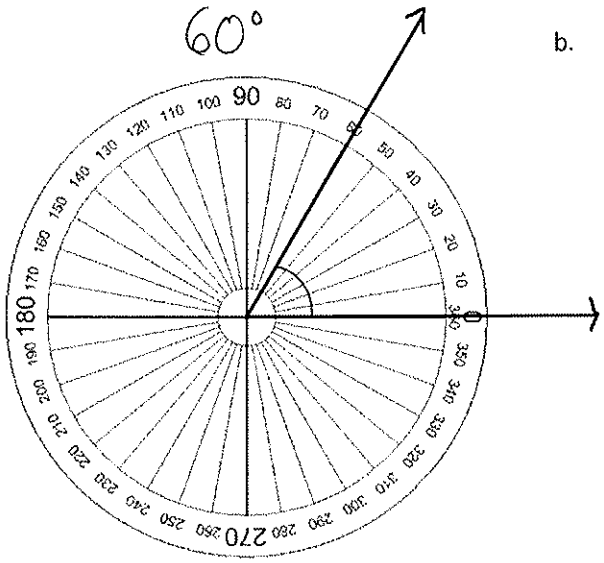


$\overline{TZ} \parallel \overline{XY}$

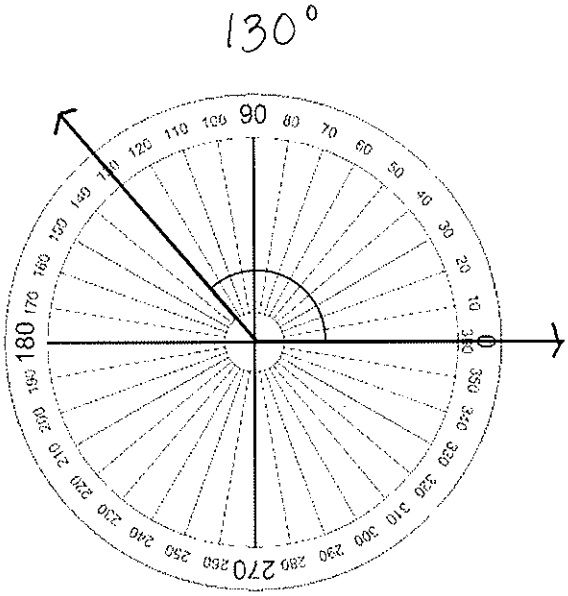
Name Key Date _____

1. Identify the measures of the following angles.

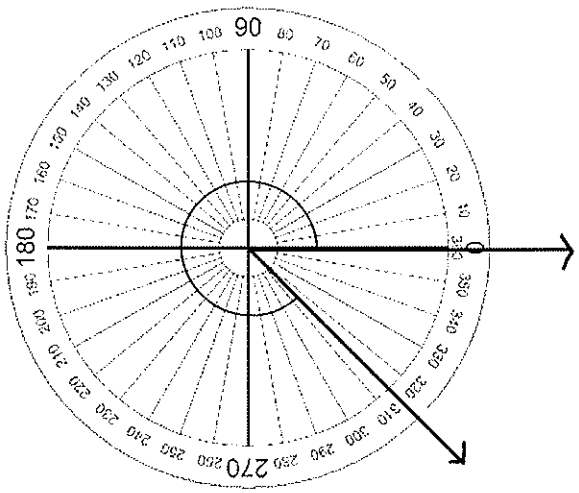
a. 60°



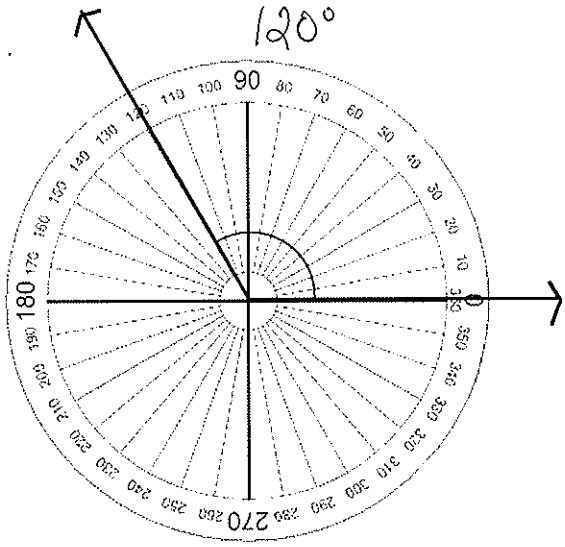
b. 130°



c. 315°

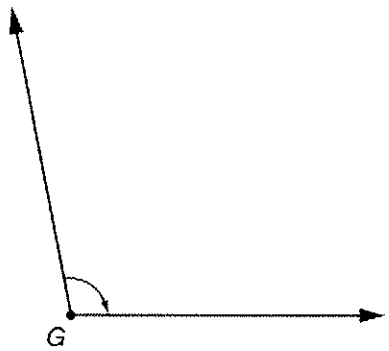


120°

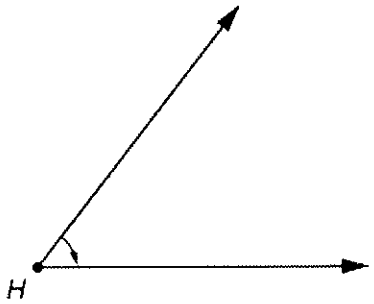


2. Circle the best estimate for the following angles.

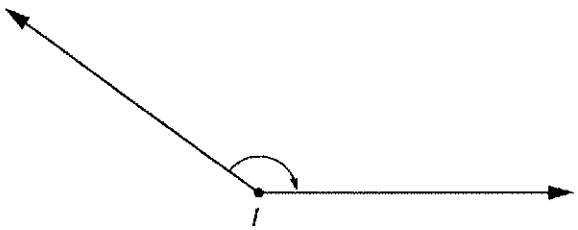
a. 90° (100°) 200°



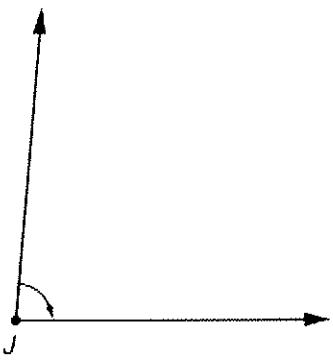
b. 10° (50°) 180°



c. 45° 90° (155°)



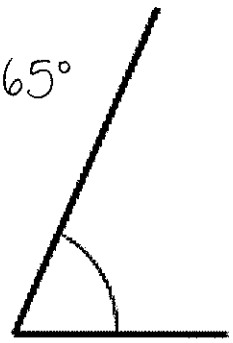
d. (85°) 90° 100°



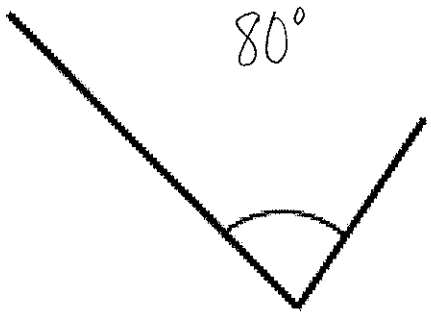
Name Key Date _____

1. Use a protractor to measure the angles. Record the measurements in degrees. Round to the nearest 5 degrees.

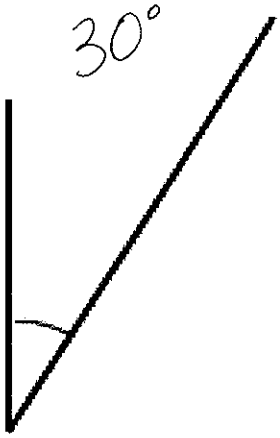
a.



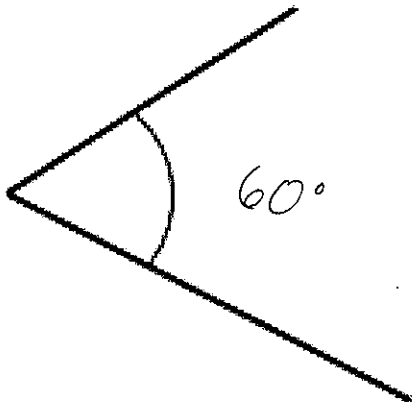
b.



c.

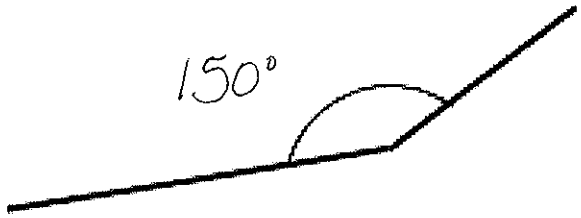


d.

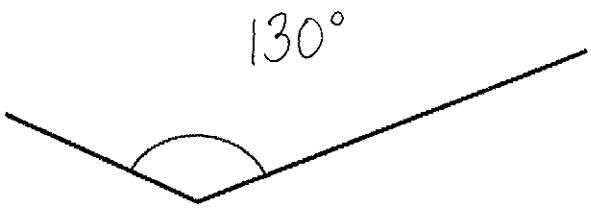


e.

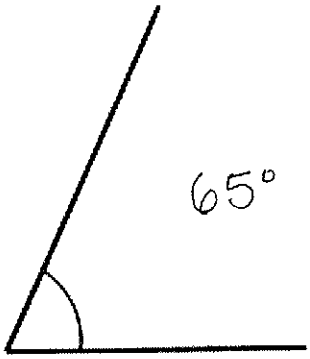
f.



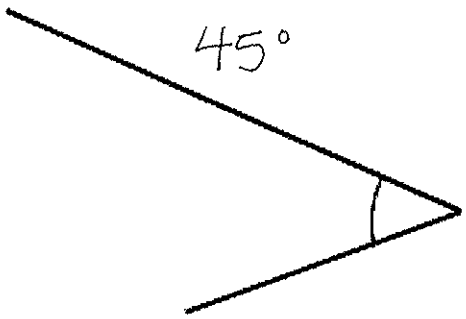
g.



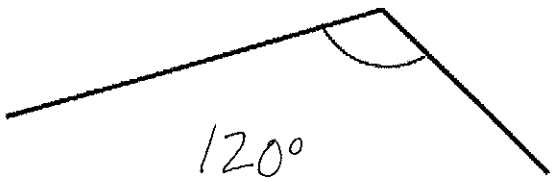
h.



i.



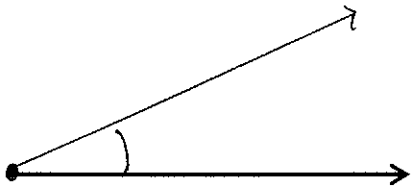
j.



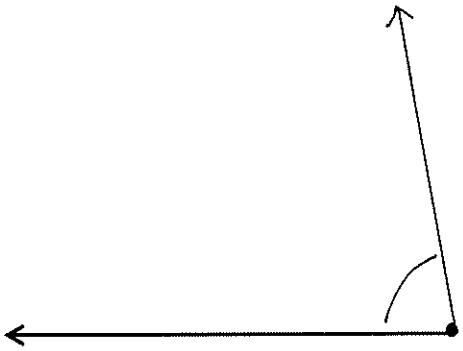
Name Key Date _____

Construct angles that measure the given number of degrees. Draw an arc to indicate the angle that was measured.

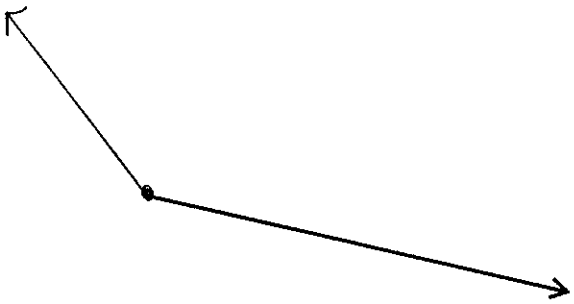
1. 25°



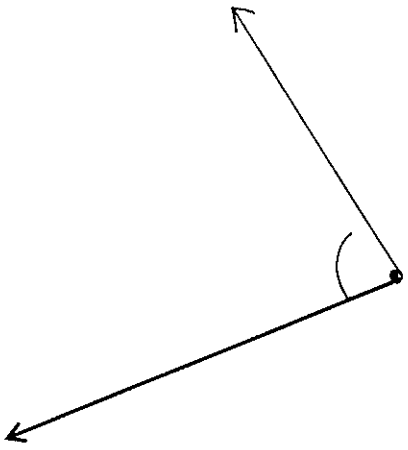
2. 85°



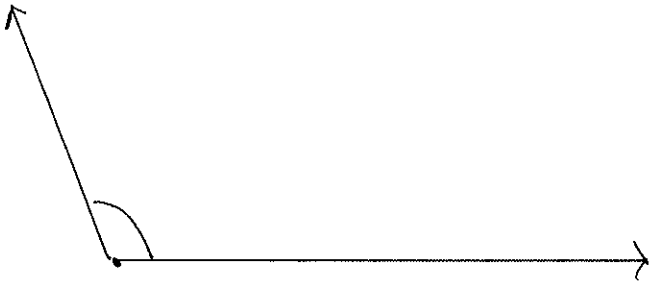
3. 140°



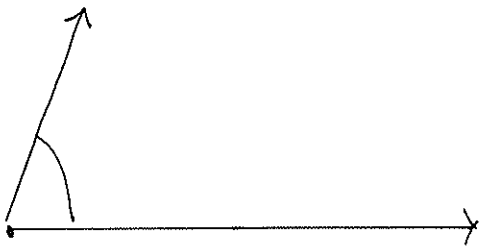
4. 80°



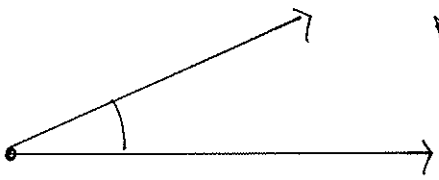
5. 110°



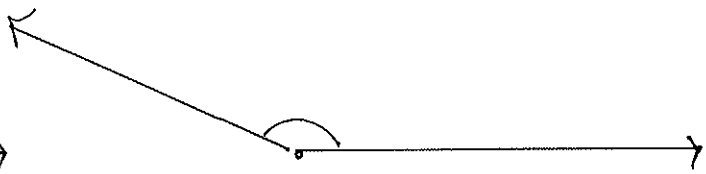
6. 70°



7. 25°



8. 155°



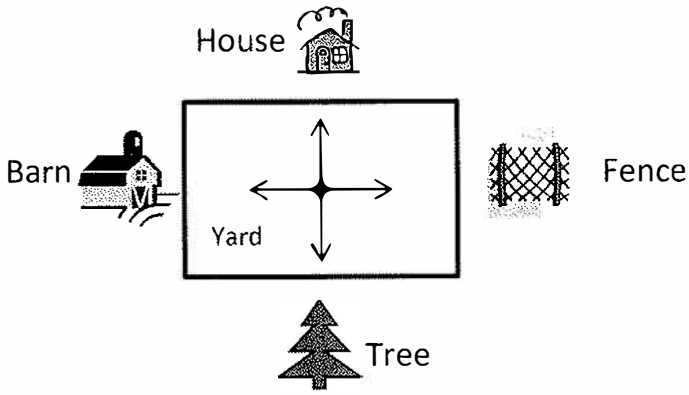
Name Key Date

1. Jill, Sara, and Barb stood in the middle of the yard and faced the barn. Jill turned 90° to the right. Sara turned 180° to the left. Barb turned 270° to the left. Name the object that each girl is now facing.

Jill house

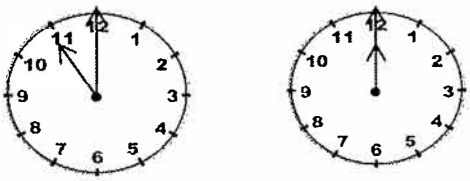
Sara fence

Barb house



2. Allison looked at the clock at the beginning of class and at the end of class. How many degrees did the minute hand turn from the beginning of class until the end?

360°



Beginning End

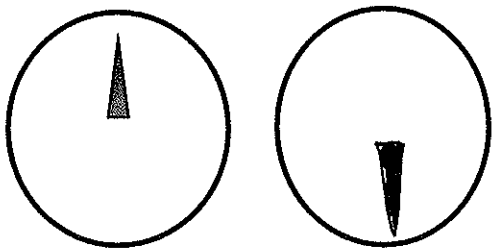
3. The snowboarder went off a jump and did a 180. In which direction was the snowboarder facing when he landed? How do you know?

180° is half of a turn on a circle, so he turned half way around.

4. As she drove down the icy road, Mrs. Campbell slammed on her brakes. Her car did a 360. Explain what happened to Mrs. Campbell's car.

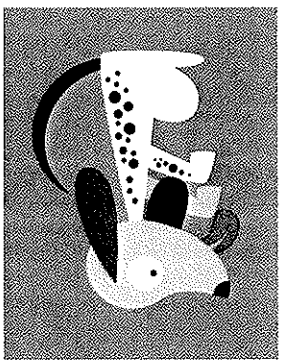
360° is a full turn on a circle, so she turned completely around.

5. Jonah turned the knob of the stove two quarter-turns. Draw a picture showing the position of the knob after he turned it.



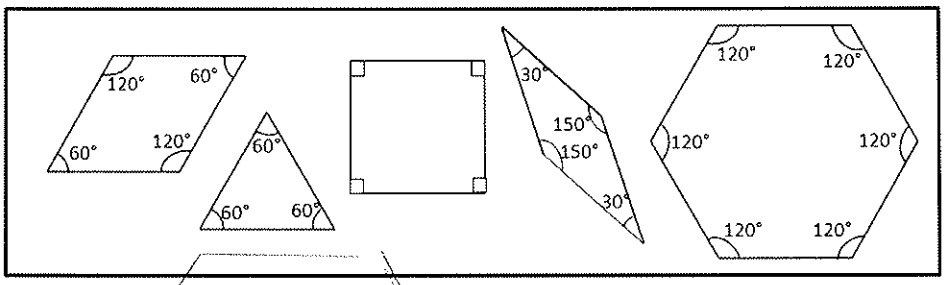
Before After

6. How many quarter-turns does the picture need to be rotated in order for it to be upright? 2 quarter turns

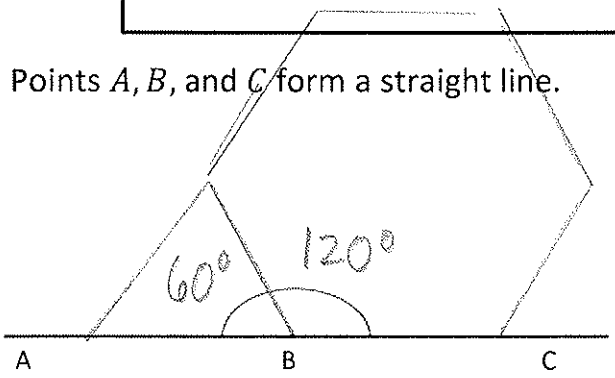


Name Key Date

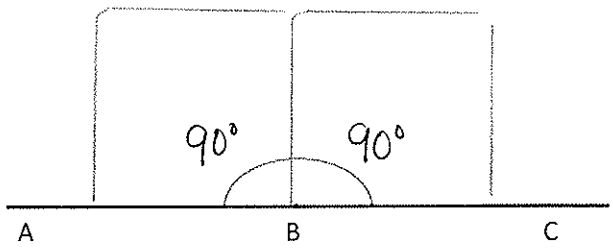
Sketch two different ways to compose the given angles using two or more pattern blocks. Write an addition sentence to show how you composed the given angle.



1. Points A, B, and C form a straight line.

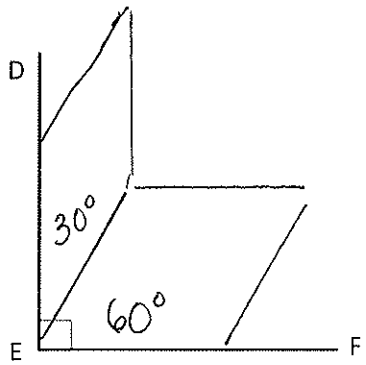


180° = 60° + 120°

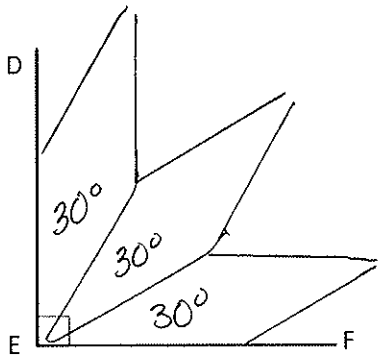


180° = 90° + 90°

2. $\angle DEF = 90°$

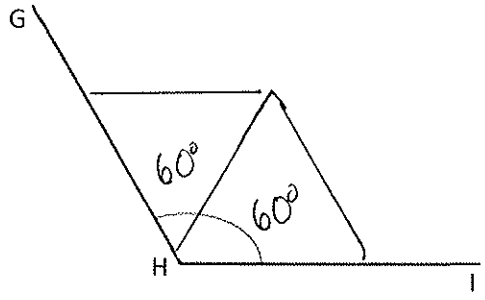


90° = 30° + 60°

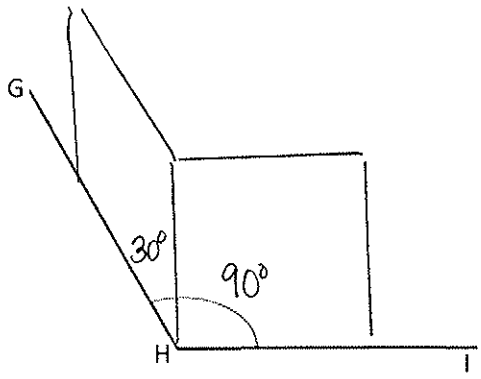


90° = 30° + 30° + 30°

3. $\angle GHI = 120°$

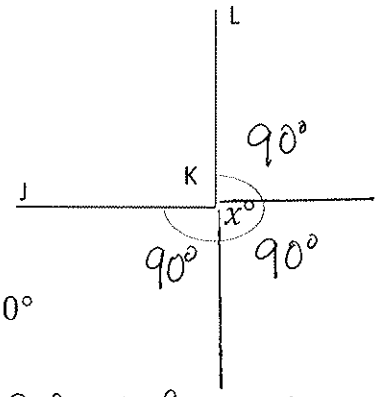


120° = 60° + 60°

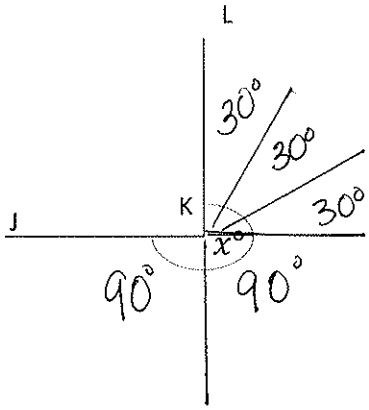


120° = 30° + 90°

4. $x° = 270°$



270° = 90° + 90° + 90°

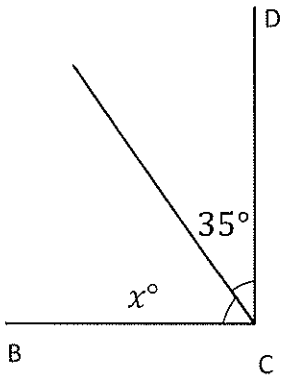


270° = 90° + 90° + 30° + 30° + 30°

Name Key Date

Write an equation and solve for the measurement of $\angle x$.

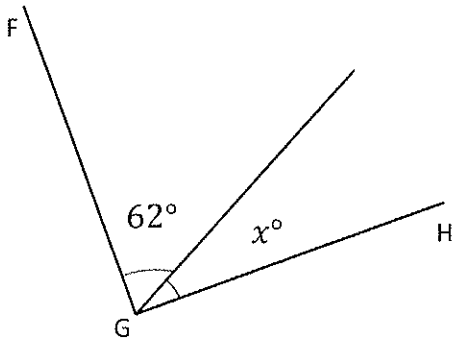
1. $\angle DCB$ is a right angle.



35° + 55° = 90

$x°$ = 55°

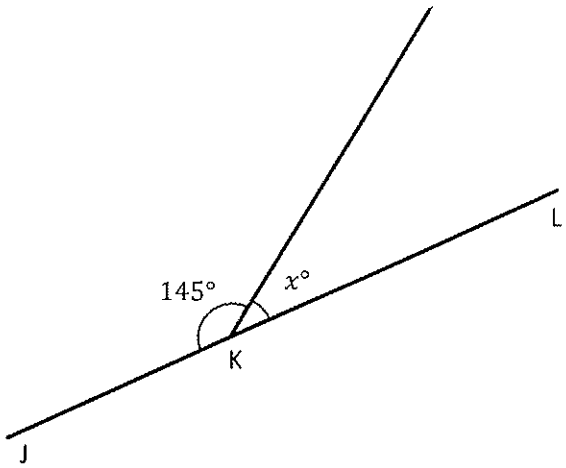
2. $\angle HGF$ is a right angle.



62 + 28° = 90°

$x°$ = 28°

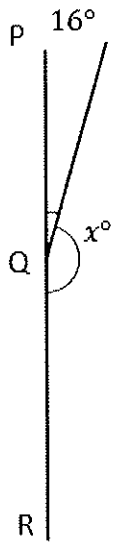
3. $\angle JKL$ is a straight angle.



145° + 35° = 180°

$x°$ = 35°

4. $\angle PQR$ is a straight angle.



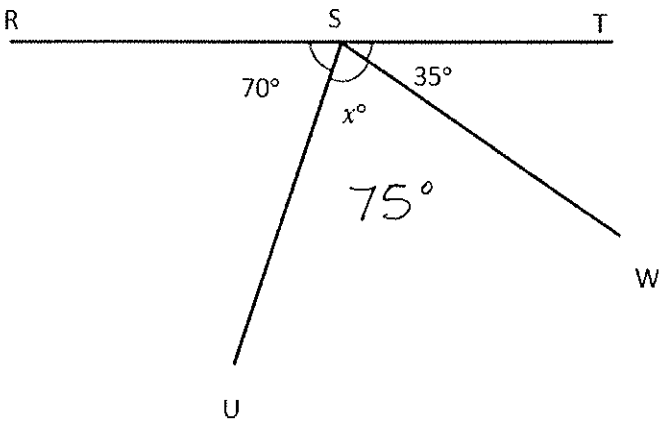
16° + 164° = 180°

$x°$ = 164°

Write an equation and solve for the unknown angle measurements.

5. Solve for the measurement of $\angle USW$.

$\angle RST$ is a straight angle.

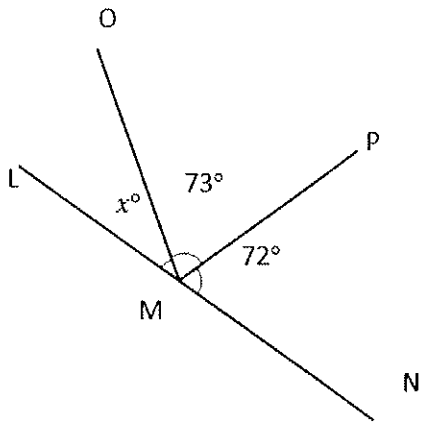


$70° + 35° + 75° = 180°$

$\angle USW = 75°$

6. Solve for the measurement of $\angle OML$.

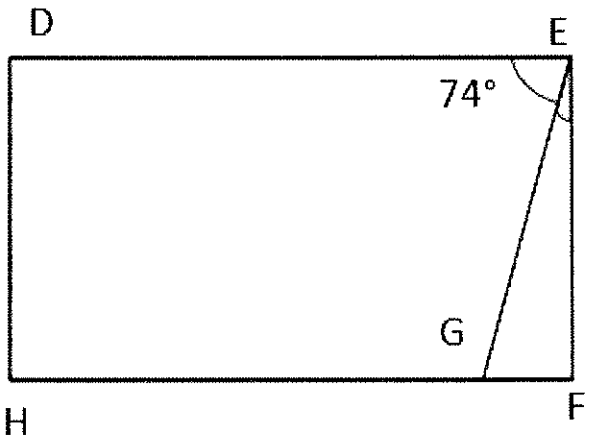
$\angle LMN$ is a straight angle.



$73° + 72° + 35° = 180°$

$\angle OML = 35°$

7. In the following figure, $DEFH$ is a rectangle. Without using a protractor, determine the measurement of $\angle GEF$. Write an equation that could be used to solve the problem.



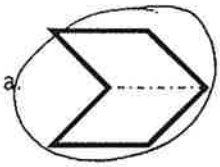
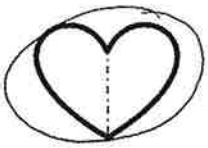
$\angle DEF = 90°$

$90° - 74° = 16°$

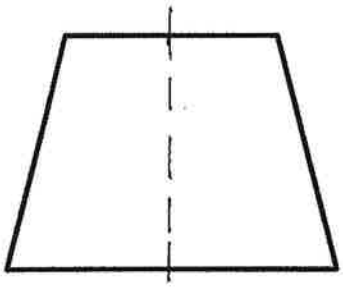
$\angle GEF = 16°$

Name Key Date _____

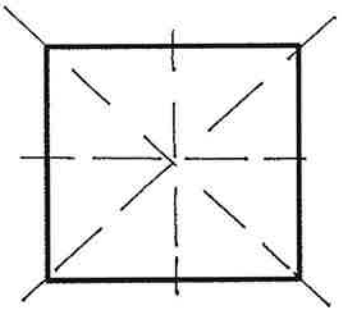
1. Circle the figures that have a correct line of symmetry drawn.

a.  b.  c.  d. 

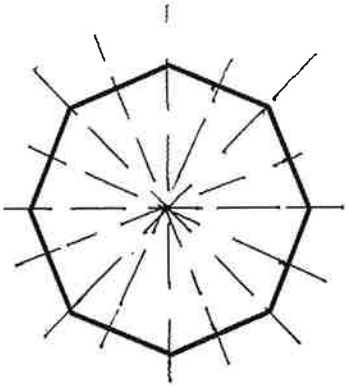
2. Find and draw all lines of symmetry for the following figures. Write the number of lines of symmetry for each shape.



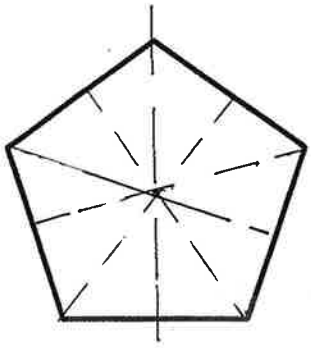
a. 1



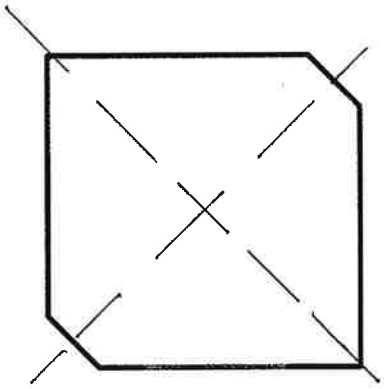
b. 4



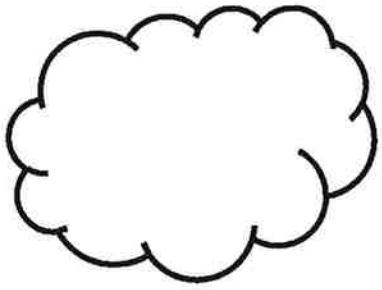
c. 8



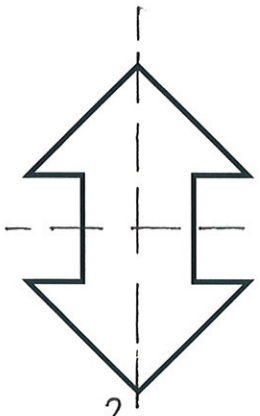
d. 5



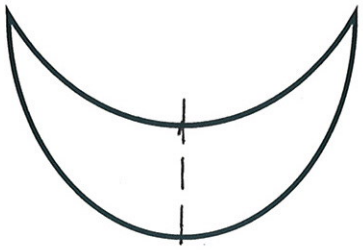
e. 2



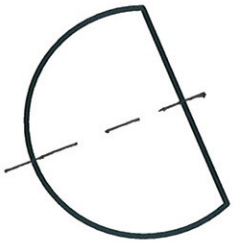
f. 0



g. 2



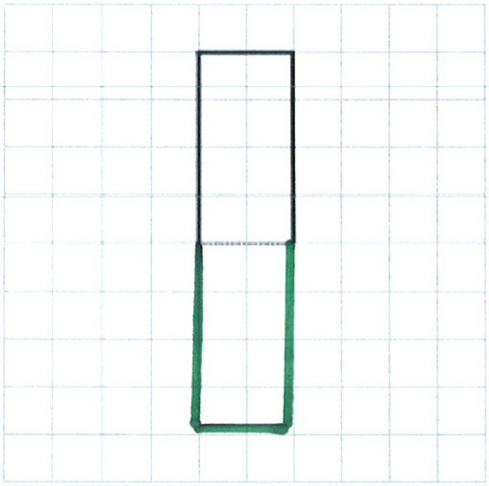
h. 1



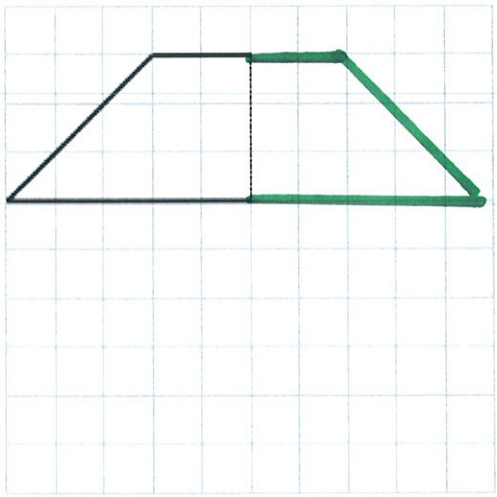
i. 1

3. Half of each figure below has been drawn. Complete each figure.

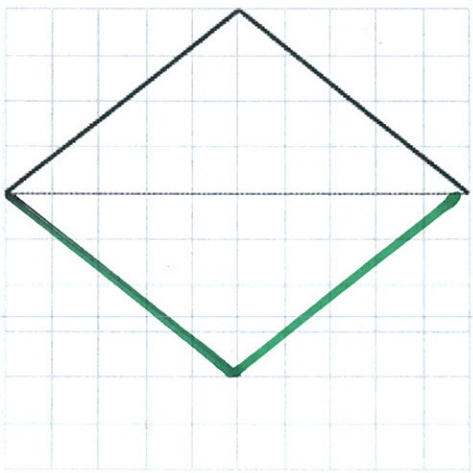
a)



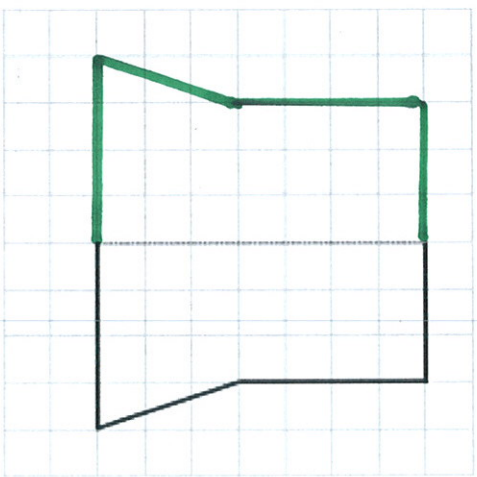
b)



c)

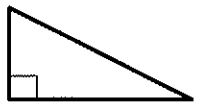
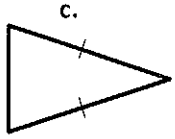
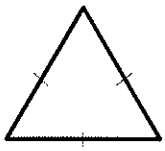


d)

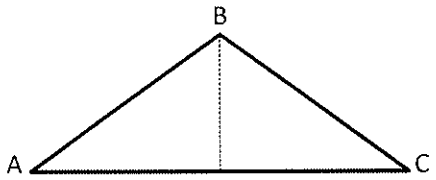


Name Key Date _____

1. Classify each triangle by its side lengths and angle measurements. Circle the correct names.

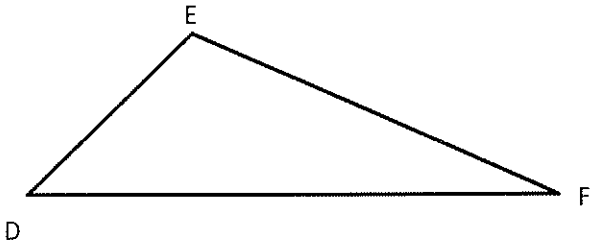
	Classify Using Side Lengths	Classify Using Angle Measurements
a. 	Equilateral Isosceles (Scalene)	Acute (Right) Obtuse
b. 	Equilateral Isosceles (Scalene)	Acute Right (Obtuse)
c. 	Equilateral (Isosceles) Scalene	(Acute) Right Obtuse
d. 	(Equilateral) Isosceles Scalene	(Acute) Right Obtuse

2. a. ΔABC has one line of symmetry as shown. Is the measure of $\angle A$ greater than, less than, or equal to $\angle C$? $\angle A$ = $\angle C$

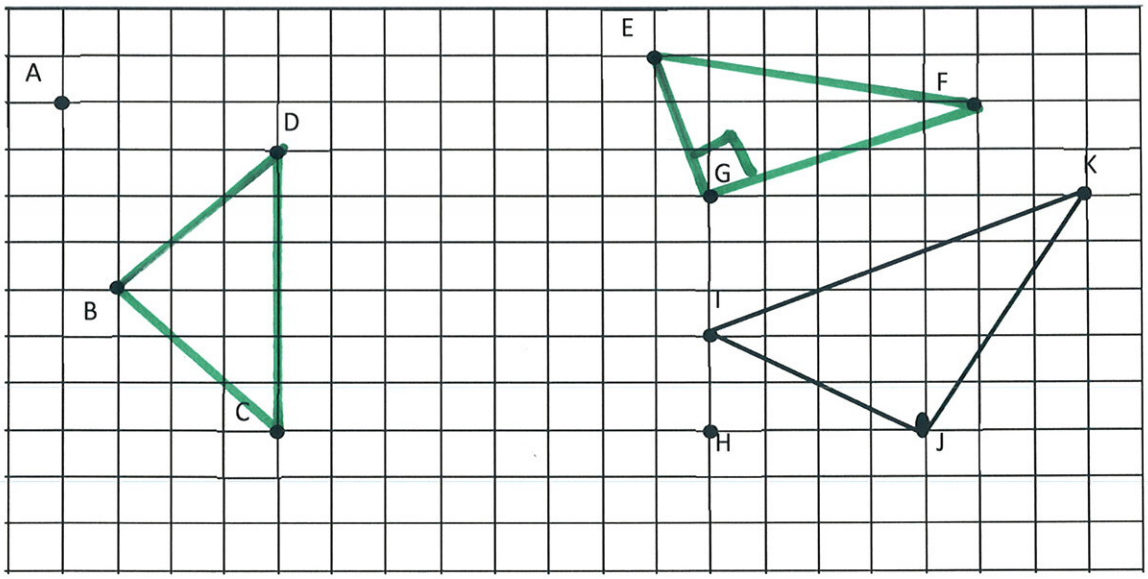


b. ΔDEF is scalene.
What do you observe about its angles?

None of the angles are equal.



3. Use a ruler to connect points to form two other triangles. Use each point only once. None of the triangles may overlap. Two points will not be used. Name and classify the three triangles below. (examples)



Name the Triangles Using Vertices	Classify by Side Length	Classify by Angle Measurement
ΔIJK	Scalene	Obtuse
$\triangle BCD$	Isosceles	Acute
$\triangle EGF$	Scalene	Right

4. If the perimeter of an equilateral triangle is 15 cm, what is the length of each side?

Each side would be 5cm.

5. Can a triangle have more than one obtuse angle? Use a drawing to explain.

No. The two sides would never meet to make the third point.