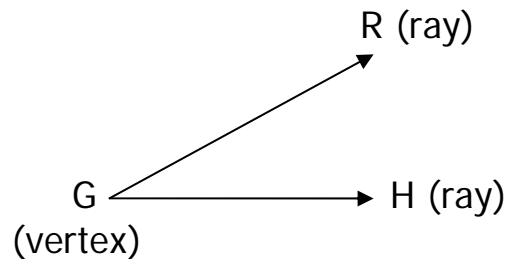


## Measuring Angles Angle Facts



- Angles are formed when two lines or rays meet. (A line connects two points and can go on forever in two directions. A ray has one endpoint and can go on forever in one direction.)
- The meeting point of two lines or two rays is called the **vertex**.



- Angles are measured in units called **degrees**. Angles can range in size between 0 and 180 degrees. (Remind students that a straight line is 180 degrees.)
- There are three major categories of angles: **right angle**, **obtuse angle**, and **acute angle**.
- A **right angle** has an exact measurement of 90 degrees.
- An **acute angle** has a measurement between 0 and 90 degrees.
- An **obtuse angle** has a measurement between 90 and 180 degrees.
- Angles are named either by the one letter assigned to the vertex ( $\angle G$ ) or by three letters with the vertex as the center letter and the remaining two letters denoting the lines or rays ( $\angle RGH$ ) of the angle.



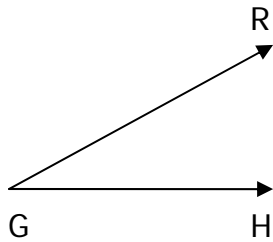
# Measuring Angles

## Angle Worksheet

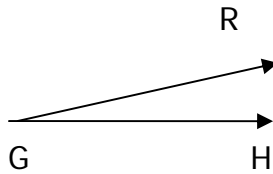
Name: \_\_\_\_\_

### Part I

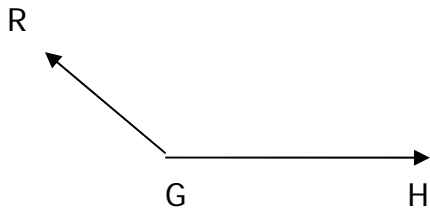
Help RG and Hannie measure the following angles. Record each measurement in degrees. Identify each angle as an acute, obtuse, or right angle.



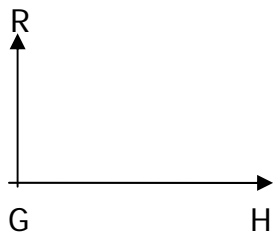
Measurement: \_\_\_\_\_ Type of Angle: \_\_\_\_\_



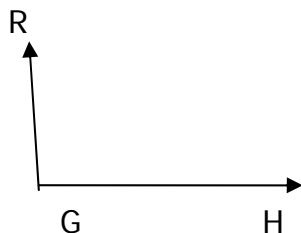
Measurement: \_\_\_\_\_ Type of Angle: \_\_\_\_\_



Measurement: \_\_\_\_\_ Type of Angle: \_\_\_\_\_



Measurement: \_\_\_\_\_ Type of Angle: \_\_\_\_\_



Measurement: \_\_\_\_\_ Type of Angle: \_\_\_\_\_



# Measuring Angles

## Angle Worksheet

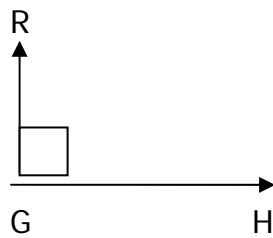
### Part II

The right angle  $\text{RGH}$  has a measurement of  $90^\circ$ . Divide the angle in half by drawing a ray from the  $G$  Vertex and label it  $S$ .

What is the measurement of the  $\text{RGS}$  angle?

What is the measurement of the  $\text{SGH}$  angle?

Explain how you know your answers are correct.



Measurement of  $\angle \text{RGS}$ : \_\_\_\_\_

Measurement of  $\angle \text{SGH}$ : \_\_\_\_\_

Explain: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### Part III

1. A truck is climbing a hill with a 15 degree grade. The grade is the pitch or steepness of the road. Draw a picture of the hill using your protractor.

2. A pizza is a circle. A circle measures  $360^\circ$ . Assume the center of the pizza is the vertex. Divide the pizza into four equal slices.

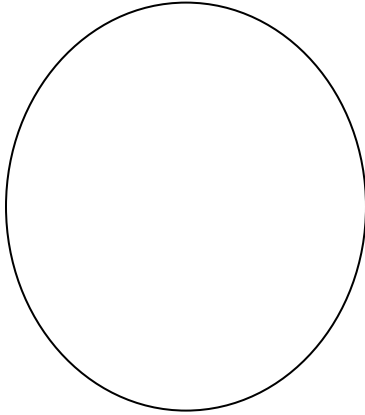
What is the measurement of each angle?

What types of angles are created?

Explain how you know your answer is correct.



# Measuring Angles Angle Worksheet



Measurement of each angle: \_\_\_\_\_

Type of angles: \_\_\_\_\_

Explain: \_\_\_\_\_

---

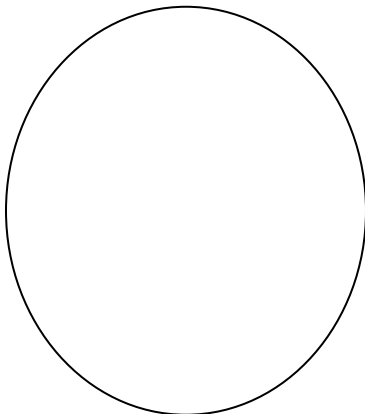
---

3. Divide another pizza into six slices with the center as the vertex.

What is the measurement of each angle?

What types of angles are created?

Explain how you know your answer is correct.



Measurement of each angle: \_\_\_\_\_

Type of angles: \_\_\_\_\_

Explain: \_\_\_\_\_

---

---

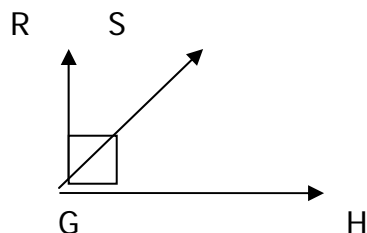
# Measuring Angles

## Angle Worksheet Key

### Part I

1. Measurement: **30°** Type of Angle: **acute**
2. Measurement: **12°** Type of Angle: **acute**
3. Measurement: **135°** Type of Angle: **obtuse**
4. Measurement: **90°** Type of Angle: **right**
5. Measurement: **92°** Type of Angle: **obtuse**

### Part II



Measurement of  $\angle RGS$ : **45**

Measurement of  $\angle SGH$ : **45**

Explain: **The sum of angles RGS and SGH totals 90° with the exact measurement of a right angle.**

### Part III

1. Accept all reasonable drawings
2. Measurement of each angle is 90°  
Type of angles is right angles  
Explain: The sum of the angles 4 slices x 90° is equal to 360°
3. Measurement of each angle: 60 degrees  
Type of angles: acute angles  
Explain: The sum of the angles 6 slices x 60° is equal to 360°

## Measuring Angles Assessment

Use the following summary to assess a student's abilities and performance throughout the lesson. Share this assessment with students at the start of the lesson so that students will understand how they will be assessed prior to beginning the Exploring and Learning section. The tool can be used as a basis for providing feedback to students. Use the scale below to score each of the following items:

### **Making Connections:**

\_\_\_\_\_ Student participates in discussion by offering answers to one or more of the questions asked by the teacher.

### **Exploring and Learning**

\_\_\_\_\_ Student works with partner to identify and list examples of angles found inside and outside the school.

\_\_\_\_\_ Student participates in discussion sharing angle examples.

\_\_\_\_\_ Student participates in discussion identifying some major features of a protractor.

\_\_\_\_\_ Student works with partner using a protractor to measure and identify angles as right, acute, and obtuse angles in problem #1 of the worksheet.

\_\_\_\_\_ Student solves additional angle problems and understands concepts regarding angle measurements in problems #2-5 of the worksheet.

\_\_\_\_\_ Student creates angles using toothpicks to build two-dimensional models representing right, acute, and obtuse angles.

### **SCALE**

#### **4 – Excellent**

Student completes the activity, task or assignment with no errors and demonstrates mastery of concepts and/or lesson objectives.

#### **3 – Good**

Student completes the activity, task, or assignment with few major errors and demonstrates an understanding of the concepts and/or lesson objectives.

#### **2 – Fair**

Student completes the activity, task, or assignment with some major errors and demonstrates difficulty with the concepts and lesson objectives.

#### **1 – Poor**

Student does not complete the activity, task, or assignment and demonstrates no understanding of the concepts and/or lesson objectives.