

SOL 6.12

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

**Activity Objectives:**

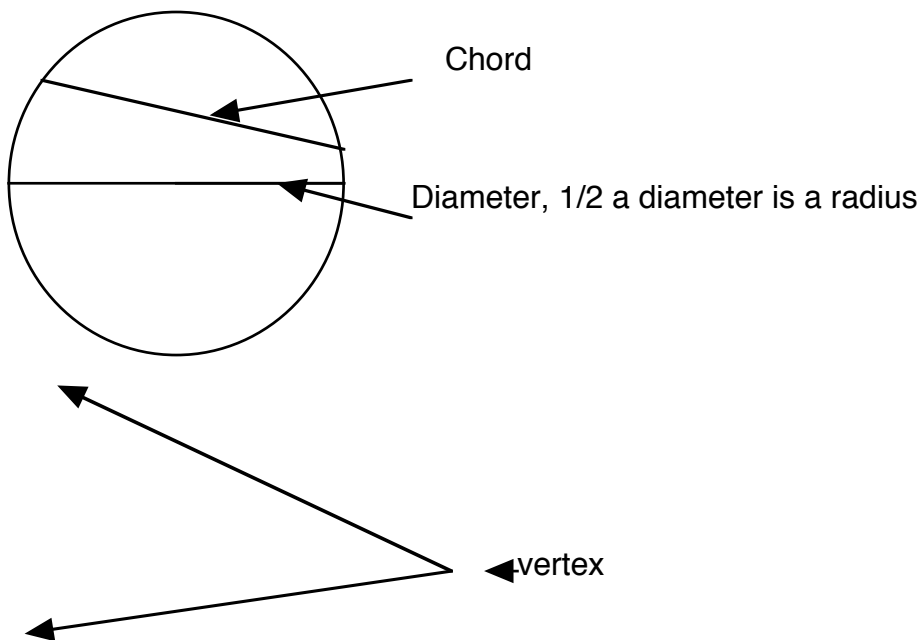
- Establish the relationship (ratio) that exists between a circle's circumference and its diameter.
- Find a circle's circumference when given its diameter or radius.
- Find a circle's diameter when given its circumference.

**Vocabulary:**

- **Ratio**-comparison between two numbers. can be expressed as:

a to b      a : b       $\frac{a}{b}$

- **Circumference**- distance around (perimeter) a circle    **c**
- **Diameter**- line segment across a circle, passing through the center    **d**
- **Radius**- line segment from the center of a circle to any point on the circle    **r**  
(  $\frac{1}{2}$  of d )
- **Chord**- line segment from any one point on the circle to any another point on the circle
- **Vertex**- point where two line segments intersect, common point



### **Changing a fraction to a decimal :**

Any fraction can easily be changed to a decimal by dividing the numerator ( top number) by the denominator ( bottom number ).

Examples:  $\frac{1}{2} = 1 \div 2 = 2 \overline{)1.00} = 0.5$        $\frac{3}{4} = 3 \div 4 = 4 \overline{)3.00} = 0.75$

### **Materials:**

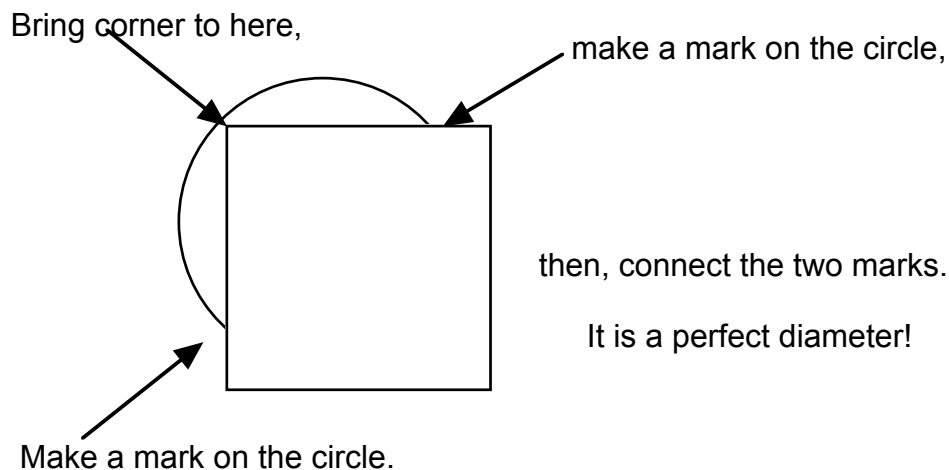
string  
collection of circular objects  
calculator  
tape measure and ruler (metric)  
lab / data sheets

### **Instructions:** For each object

1. measure its circumference by running string around it and then measuring the length of string required. Record result in the data table. Tape measure can be used when appropriate.

2. measure its diameter. Record result in the data table.

**Try this to find the diameter.** Take a piece of paper with a 90° corner. Place the corner (vertex) on the circle. Mark on the circle where the two edges of the paper "cut" the circle. Connect those two points. Perfect diameter!!



3. record the ratio of the circumference to the diameter in fraction form.

4. convert the fraction to an equivalent decimal... to the hundredths position. Record result in the data table.

DATA SHEET FOR RATIO LAB-CIRCLES

Object	Circumference	Diameter	Ratio $\frac{c}{d}$		Decimal equivalent to hundredths)
1				=	
2				=	
3				=	
4				=	
5				=	
6				=	
7				=	
8				=	

**Questions to be answered after completing data collection.**

1 What observation can you make about the ratio's decimal value found for all objects? \_\_\_\_\_

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2. Do you think this would be true for all circles? \_\_\_\_\_  
Why? \_\_\_\_\_

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3. If you know either the circumference or diameter, could you find the other using your conclusion from question #1? How?

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**EXTENSION:** Fill in missing information **after** answering questions 1 , 2 & 3

	Circumference (approx.)	Diameter (approx.)
a. Earth's	_____	8,000 mi.
b. dodge ball circle	62 feet	_____
c. 25 cent coin	_____	2.5 cm

Formulas:

$$\text{Pi } \pi \approx 3.14 \quad \frac{c}{d} = \pi \quad c = \pi d \quad d = \frac{c}{\pi}$$