UMATH X

Concept: The Circle

Name:

COMPUTER COMPONENT

Instructions: In **UMATH X** follow the **Content Menu** path:

Measurement and Geometry > Circles

⌨ Work through all Sub Lessons of the following Lessons **in order**:
- *In This Topic*
- *Circles All Around Us!*
- *Radius, Circumference and Diameter*
- *PI – A Special Number*
- *Circumference of a Circle*
- *AREA of a Circle*

Additional Materials Required: Compass and string.

✎ As you work through the computer exercises, you will be prompted to make notes in your notebook/math journal.

SUMMARY

1. Circles are all around you. What can you recall?

(a) Since you got out of bed this morning, list the names of any six objects that you saw that were perfect circles.

(b) From where you are sitting right now (either at a computer workstation or at your desk), look around you and record five more objects that are circles. (*Common aren't they?*)

2. **As work through the computer exercises, fill in the blanks below.** *These notes will serve you well as you work through the* **OFF COMPUTER** *exercises.*

The *RADIUS* of a circle is the D_____ from the C_____ of a C_____ to any P_____ on the periphery of the circle.

The *DIAMETER* of a circle is T_____ as long as the R_____. This is because the DIAMETER passes through the C_____ of a circle from one side of the circle to the O_____ side.
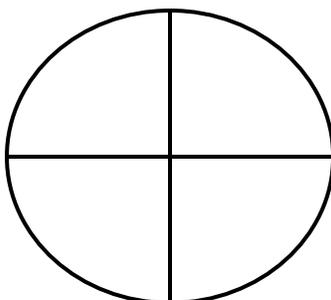
The CIRCUMFERENCE of a circle is similar to the P_____ of a rectangle. It is the distance around the curved outside edge of the C_____.

In Mathematics, we will occasionally use a value that is known as a mathematical constant. One such special value is called *pi*. The symbol π is from the Greek language and represents *pi* with the value _____. No matter what the size of circle, the value of π remains constant. From a circle representing the orbit of Planet Earth to a gene in a strand of DNA, the value of π is always _____.

From your computer work, you will have noticed that π was used in the shortcuts to find both the _____ and the _____ of a circle. In the chart below, enter the formula shortcuts that were developed with the use of the software.

Circle Attribute	Formula (Shortcut)
Circumference (radius is known)	
Circumference (diameter is known)	
Area (radius must be calculated)	

3. Add four (4) different labels to this model of a circle:

OFF COMPUTER EXERCISES

1. Show by a diagram how these ideas relate to the measurement of a **radi**us, a diameter or the circumference of a circle:

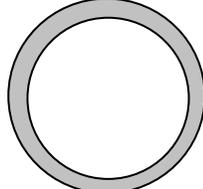|	
The turning light (**radi**ation) of a lighthouse that extends for many kilometres.	A **radi**o station sends its signal to its listeners.
A compass needle models **diameter**.	Captain James Cooke **circum**navigates the Earth

2. School Trip Anyone? In your school gym, you will probably find a number of circles painted on the floor and perhaps on the walls. For each circle that you measure, it is important to estimate your answer before you actually measure and 'crunch' the numbers. Be sure to use the correct units on measure in your final answer. (e.g. m^2) Complete as many circles as you can.

Test Circle	Estimate of Circumference	Actual Circumference	Estimate of Area (units^2)	Actual Area (units^2)
Circle 1				
Circle 2				

UMATH X

Circle 3				
Circle 4				

Space to complete calculations

3. In this exercise, you will be given an attribute of a circle. Your job is two-fold:

- Use a compass set to draw the circle that fits the attribute. Make your best guess for this.
- For the actual circle that you draw, measure the radius or diameter and calculate using the appropriate formula, the actual attribute. Compare this to the original to see how closely you were able to estimate.

Circumference is 10 cm	**Area is 28 cm^2**
*Actual-*_____	*Actual-*_____

Circumference is 16 cm	**Area is 20 cm^2**
*Actual-*_____	*Actual-*_____

Were your estimates accurate? *Explain.*

_____

_____

_____

4. Find the circumference(s)/perimeter(s) and area of the following shaded areas:
<u>HINT:</u> Break in to easier shapes.

(a)	(b)
8 cm 10 cm	Inside diameter = 6 cm Outside diameter = 8 cm
Circumference	**Circumference**

Neufeld Learning Systems Inc

Perimeter	Perimeter
Area	**Area**

Reflect on what you were required to do when you found the area of (b) that you didn't need to do for (a).

_____

_____

_____