**Discovering Pi**

Using yarn, measure the *circumference* and *diameter* of your 6 different circular objects, marking the yarn at each measurement. Find the value of this distance to the nearest ½ centimeter, by using a ruler. Record the object number, circumference, and diameter in the chart below. Then, write the ratio of the circumference to the diameter in the form of a fraction (divide the circumference by the diameter). Next, use a calculator to change the fraction into decimal form, rounding to the nearest thousandth. After doing this for all 6 objects, find the *mean (average)* of the 6 calculations.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Object | Circumference | Diameter | Circumference | Circumference |
|  |  |  | Diameter | divided by Diameter |
| Taylor’s Water Bottle | 22 cm | 7 cm | 22/7 | 3.142857143 |
| Britney’s Ginger Ale | 17 cm | 5.25 cm | 17/5.25 | 3.238095238 |
| Red Plastic Cup | 28.5 cm | 9.25 cm | 28.5/9.25 | 3.081081081 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Average: 3.154011154 .

Explain what pattern developed when you divide the circumference by the diameter?

The formula for circumference of a circle is diameter\*pi. A commonly used approximate for *pi* is 3.14. How close is your average to *pi* ? Find the difference between your average and *pi.*

1. In mathematics, Pi is approximately 3.14159. Explain in your own words how the value for pi is found.

2. Pi is an *irrational* number.

a) Write 2 or more sentences explaining what it means for a number to be *irrational*.

b) Give an example of a number that is *rational* and write a sentence explaining why it is rational.

3 Which approximate is more accurate for pi: 22/7 or 3.1? Explain why. Use complete sentences.