

Let's Take a Slice of Pi

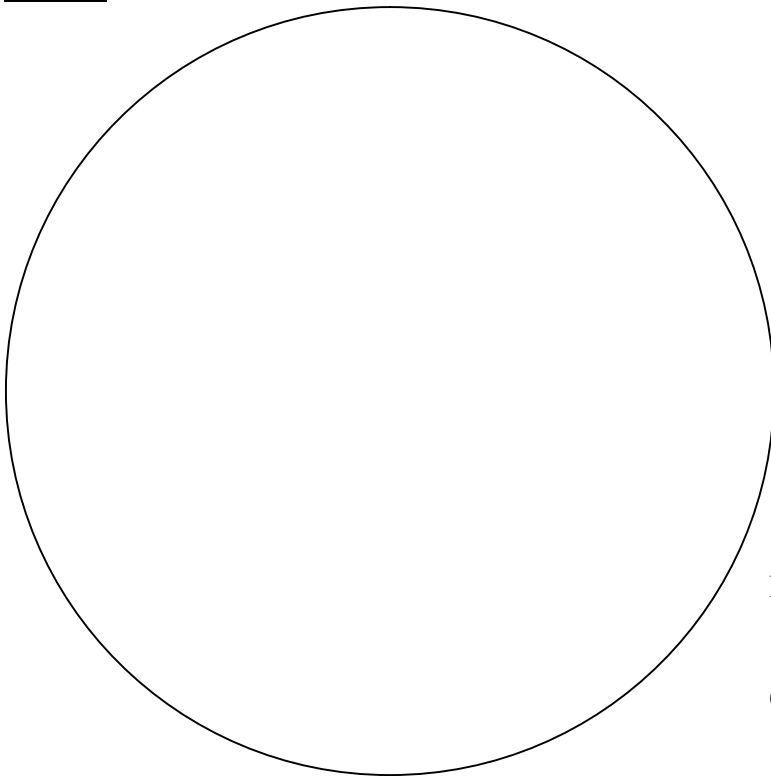
Pi Pre-Activity Worksheet

Materials needed:

- Ruler
- Pencil
- Yarn
- Scissors
- Markers
- Calculator

1. Measure the **diameter** of each of the three circles below in centimeters and record the values.
2. Measure the **circumference** of each circle by following the steps below:
 - a. Take a piece of yarn and place the end of the yarn right on top of the circle and wrap the yarn around the entire circle's **perimeter**.
 - b. Mark the endpoint (where the yarn meets its end at the top of the circle) with a dark colored marker.
 - c. Pick up the yarn after it's been marked, straighten it and cut it off where the endpoint is marked. This should give you the **circumference** of the circle.
 - d. Measure the piece of yarn with a ruler (remember to use the **centimeters** scale) and record this value.

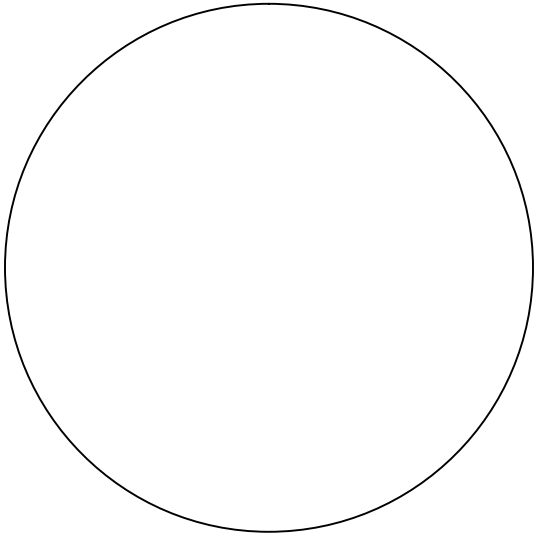
Circle 1



Diameter: 10 cm

Circumference: 31.4 cm

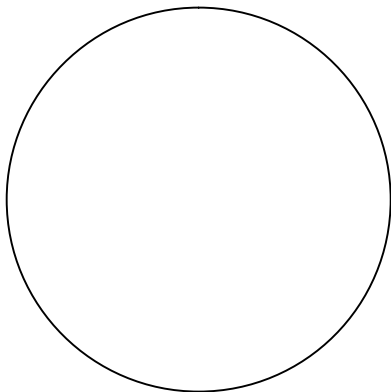
Circle 2



Diameter: 7 cm

Circumference: 22.0 cm

Circle 3



Diameter: 5 cm

Circumference: 15.7 cm

Let's calculate Pi, π !

Recall that Pi is equal to the circumference of a circle divided by the diameter of that circle, so:

$$\text{Pi} = \text{circumference} / \text{diameter}$$

For each of the circles above, use the values you measured and recorded to perform the above equation to find Pi.

(1) Circle 1:

$$\text{Pi} = \underline{3.1400} = \underline{31.4} \text{ cm} / \underline{10} \text{ cm}$$

(2) Circle 2:

$$\text{Pi} = \underline{3.1429} = \underline{22.0} \text{ cm} / \underline{7} \text{ cm}$$

(3) Circle 3:

$$\text{Pi} = \underline{3.1400} = \underline{15.7} \text{ cm} / \underline{5} \text{ cm}$$

Conclusion:

(1) Do the calculated values of Pi for all three circles match? [Yes (very close) or No]. Explain your answer.

Yes, the calculated values of Pi match or are very close. My answers for circles 1 and 3 are exactly the same and my answer for circle 2 came out only slightly different, but would be the same if I rounded my answer.

(2) Take an average of the 3 Pi values (sum of all 3 pi values divided by 3):

3.1410

(3) Is the average Pi value close to the accepted value of 3.14151 ? Explain.

The averaged Pi value is extremely close to the accepted value of 3.14151. If my answer and the value for Pi were rounded to one, two or three places after the decimal, they would be the same.