**Follow Up Component**

**Directions:** If you have class time left, you may start on this part in your group. The rest becomes homework, due on the date shown above by each student individually.

* Note: Use  on your calculator, not 3.14

# ARCHAEOLOGY: SIZING POTTERY FROM A SHARD

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1. Let’s generalize our situation. Consider the following diagram representing the measurements of a rim shard that was found at an archaeological digging site.

Write the Pythagorean Theoremfor **this** example.

*x*

*Center of opening*

P

*x –* P

L

This is the rim shard

1. **Solve** the above equation **for *x***. (*Don’t forget to* FOIL! )

 This creates a formula for finding the radius.

1. Although there are several different ways to write the formula for the radius, we will now use



1 cm

2 cm

 Consider the following pottery shard.

Use the provided (and hopefully verified) formula to find the radius of this pot. [*Give units with your answer.*]

1. Use the radius to find the circumference of the opening of the pot. *Round your answer to one decimal place.* [*Show the calculation* *and give units with your answer.*]

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1. There are 2.54 cm in an inch. Convert your radius into inches. *Round your answer to two decimal places.* [*Show the calculation* *and give units with your answer.*]
2. Convert your circumference into inches. *Round your answer to two decimal places.* [*Show the calculation and give units with your answer*.]

***Fill in the following***:

**Summary** (measurements of this pot):

Radius in cm: r = \_\_\_\_\_\_\_\_\_ *cm*

Circumference in cm: C = \_\_\_\_\_\_\_\_\_*cm*

Radius **in inches**: **r** = \_\_\_\_\_\_\_\_\_ ***in***

Circumference **in inches**: **C** = \_\_\_\_\_\_\_\_\_ ***in***

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1. Suppose you just found a rim shard. Clearly explain what steps you would need to take in order to determine the radius of the opening of the pot it came from. *Include a sketch*.