

Name: _____

Recall

Equation for circumference of a circle: _____

Equation for the area of a circle: _____

Tree calculations:

Your measured circumference: _____

Find the diameter and radius of your tree: _____

Imagine your tree was cut where you measured the circumference. Find the area of the cross-section this would create.

Challenge 1

We've figured out the circumference of the tree and the area of its cross section. Think back to what we've learned about volume in the past. Now figure out the volume of the tree stump if your tree was cut at 0.5 metres above the ground. Assume the stump does not get wider nearer the ground, but is a perfect cylinder. Also, write down an equation to find volume of any cylinder.

Once you've created a formula to find the volume of a cylinder, acquire a can from you teacher. Use your formula and any measurements you need to determine its volume. Measure out water corresponding to that volume and test to see if it fills your container.

Challenge 2

Now that you've mastered the volume of a cylinder, we will finish with the surface area of cylinders. Your goal is to determine the surface area of the tree stump we had in Challenge 1. You can ignore the bottom of the stump but you must include the round top, as well as the outside edges (where the bark is!). You also need to make a formula to find the surface area of any cylinder, just like you did for volume. (Hint: split the different parts of the cylinder up in your formula)