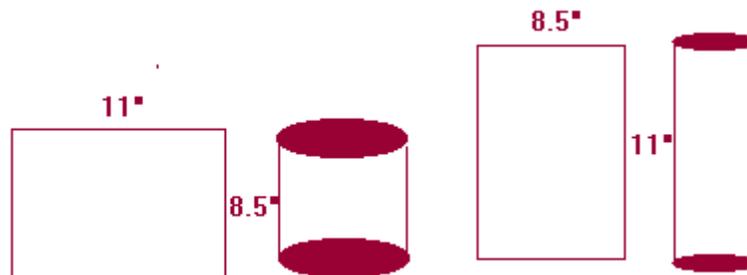


**Cynthia Lanius**

Read and see [Encouraging Mathematical Thinking](#), a videopaper project done with the Math Forum that was based on this problem. (Opens a new window.)

## Experiment with Volume



**The Problem** Take a sheet of paper, and roll it up to form a baseless cylinder. Now take another sheet, rotate the paper, and form another baseless cylinder. Think about the volume of each cylinder and make a prediction.

### A Prediction

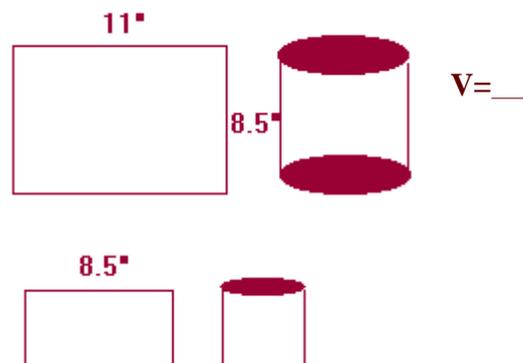
- | Would the two volumes be equal?
- | Would the short cylinder have greater volume?
- | Would the tall cylinder have greater volume?

**Explanation** Why did you predict as you did?

**A Demonstration** Tape two sheets of paper to form the two cylinders, one short and one tall (Stiff paper is helpful. I use transparency sheets). Hold the tall cylinder upright in a shallow box and fill with rice. Now fill the shorter cylinder, and compare the two amounts of rice. Was your prediction correct?

**The Calculation** Calculate both volumes. (You may need these formulas)

- | Circumference =  $2(\pi)(r)$
- | Volume =  $(\pi)(r^2)h$



$$V = \underline{\hspace{1cm}}$$

Next: [Volume Functions](#)

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URL <http://math.rice.edu/~lanius/Geom/cyls.html>