

## Cylinder Volume Activity: Coffee Math

A popular coffee distributor has just hired you and your team to design a new package. The new package is to be a larger version of the can they already use and must have the same ratio between dimensions (radius and height) as the smaller can. The small can they already use holds 11.5 ounces of coffee, has a radius of 4.9 cm, and a height of 13.1 cm.

Your job is to find the dimensions (radius and height) and the amount of metal needed to produce a can that will hold 33 ounces of coffee. The following questions will give you some hints on how to proceed.

1. What is the volume of the can that the company is already using?
2. In reference to the smaller can already being used, what is the ratio between its height and radius? In other words, Height = \_\_\_\_\_ x Radius.
3. If the ratio between the volume and the ounce weight the smaller can holds is the same as that of the can you're trying to make, what should the volume of the larger can be?
4. Using the ratio between the height and radius you found in #2 and the volume you found in #3, find the dimensions of the new can.
5. How much metal must be used to make the can already in use? Assume that the top is also made of metal (to preserve freshness!)
6. How much metal must be used to make the new can?
7. How much more metal does the new can require?