

Soda Can Optimization



To optimize:

1. Find equation that is being minimized or maximized in terms of one variable.
2. Take derivative and set equal to zero.
3. Solve for x to find critical points.

Report the volume of your soda can _____ mL

GOAL:

Given the volume of a soda, find the dimensions (in cm) of a can that uses the least amount of material.


What equation are you trying to optimize?

Get optimizing equation in terms of one variable.

Differentiate and set equal to 0. (Solve on back)

Find all critical points (by hand).

At this point, you may use calculator to round your critical points to 3 decimals. Plot critical points on line and check whether critical points are a minimum, maximum, or neither.

SA' 

Given this value, report the radius and height of the **optimal** soda can.

Radius _____ cm

Height _____ cm

Now measure your **actual** soda can and report the radius and height.

Radius _____ cm

Height _____ cm

Give **three** reasons why you think companies do not use these optimal dimensions.

1.

2.

3.