

6. [9 points] The Loads-of-Oats company is designing a new cylindrical container for their steel-cut oats. The company specifies that
- the height of the cylinder and four times the radius of the cylinder should sum to 18 inches
 - the radius of the cylinder will be at least 1 inch, and
 - the height of the cylinder will be at least 2 inches.
- a. [2 points] What is the largest possible radius of such a cylindrical container?

Answer: _____

- b. [7 points] Find the height and radius of such a cylindrical container, in inches, that maximize the volume of the container.

In your solution, make sure to carefully define any variables and functions you use. Use calculus to justify your answers, and show enough evidence that the values you find do in fact maximize the volume.

Answer: height = _____ and radius = _____