① The Cannery designs and manufactures cans for packaging soups and vegetables. A&W Foods contracted with the Cannery to produce packaging for its store brand canned corn. Each can is to hold 500 cm³ of corn. The company is interested in minimizing the cost of each can by minimizing the surface area of the can.

a. Using the information below about the volume of the can, find a rational function $h(r)$ that gives the height h of the can as a function of the radius r of the can.

<center>

Volume of a Can   **Surface Area of a Can**
$V = \pi r^2 h$ $SA = 2\pi r^2 + 2\pi r h$

</center>

$2\pi r$
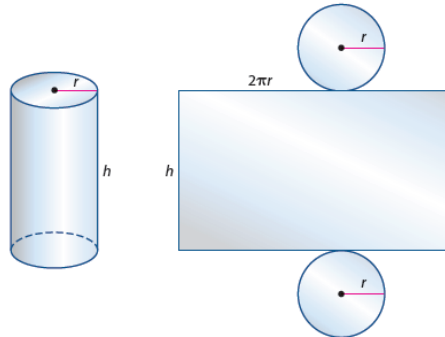
b. Based on your results from Part a, write a function $S(r)$ to calculate the surface area of the can for any given radius r.

c. Determine a practical domain for $S(r)$. Sketch a graph of the function on that domain. Identify any vertical asymptotes.

d. Determine the minimum value of $S(r)$ on this practical domain. Give the radius and height of the can with minimum surface area to the nearest tenth of a centimeter.

<center>Sep 9-12:16 PM</center>