

Intro Chapter 8 EC

This is an exercise in finding volume the calculus way.

1. Procure a piece of produce that has roughly circular cross sections. e.g. an apple, a lemon, a tomato, a potato, etc. (try to avoid bananas, they're a little too uniform).
2. Slice the fruit or vegetable so that you get circular cross sections (perpendicular to its axis of rotation). Cut it into at least 6 but not more than 12 slices.
3. Measure the individual slices for diameter on each face (one should be a little smaller than the other) and thickness. Use millimeters.
4. Find a lower estimate (using the smaller diameters) and an upper estimate (using the larger diameters) of the volume of the fruit or vegetable by summing the cylindrical volumes of the individual slices.
5. Finally, average your lower and upper estimates. Note that your lower and upper estimates are not strictly left or right hand sums. Comment on which approximation you think would be most accurate, any of the three you found or LHS, RHS, or their average.
6. Take pictures of your cross sections and provide a table of your measurements. Include your pictures, table, and results in a slideshow or presentation that concludes with your estimate of the volume of the produce you selected.

