

The Napkin Ring Paradox

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The Merriam-Webster dictionary defines a paradox as a "statement that is seemingly contradictory or opposed to common sense and is yet perhaps true." Can napkin rings from spheres of different sizes have the same volume? This project tries to solve, using a variety of methods, if napkin rings from spheres of different sizes will have the same volume. There were five ways that I have tested this paradox. I used an engineering software, a computer-generated calculator, a mathematical formula, water displacement testing, and a mold of two napkins rings filled with water. My hypothesis is that napkin rings from from spheres of different sizes will have the same volume as long as the height of the napkin ring is kept the same. The experimental results of all testing methods showed that the volume of a 50.8mm tall napkin ring from spheres of different sizes is 68641.97317mm cubed. I was able to conclude that , against common sense, napkin rings from spheres of different sizes can and do have the same volume, if the height of their rings are the same.