

A Cylinder with an Inscribed Sphere of radius 2 cm. Determine the exact values for the following attributes:

Volume of Sphere $V = \frac{4}{3}\pi r^3$

Total Surface Area of Sphere $S = 4\pi r^2$

Volume of Cylinder $V = \pi r^2 h$

Total Surface Area of Cylinder $S = 2\pi r h + 2\pi r^2$

Ratio of Volumes for our solids $\frac{V_{sphere}}{V_{cylinder}} =$

Ratio of Total Surface Areas for our solids $\frac{S_{sphere}}{S_{cylinder}} =$

Do these relationships hold true for a cylinder with an inscribed sphere of any radius?

Ratio of Volumes for our solids $\frac{V_{sphere}}{V_{cylinder}} =$

Ratio of Total Surface Areas for our solids $\frac{S_{sphere}}{S_{cylinder}} =$
