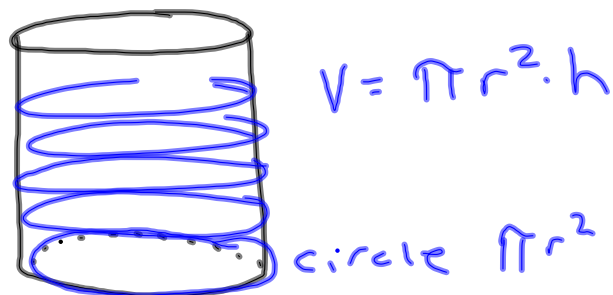
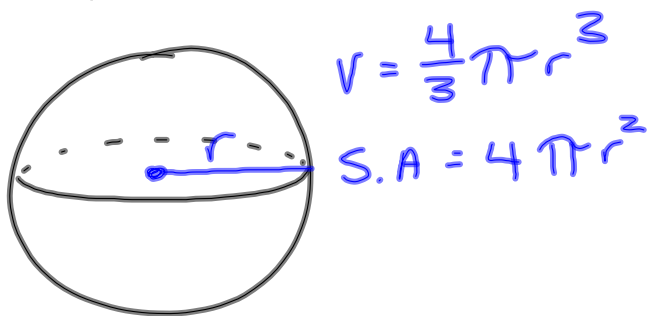


4-1-14
5th Geo

Surface Area
vs.
Volume

Sphere



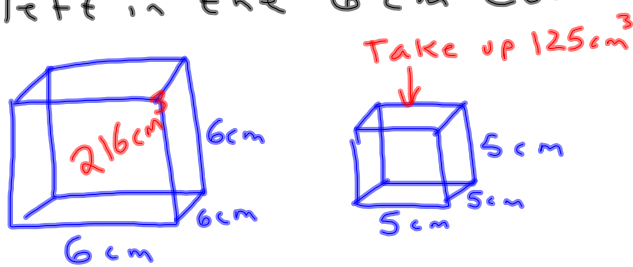
What is the volume of
a cylinder with a radius
of 6 cm and a height
of 10 cm?

$$\begin{aligned} V &= \pi r^2 h \\ &= \pi \cdot 6^2 \cdot 10 \\ &= 360\pi \approx 1131.0 \text{ cm}^3 \end{aligned}$$

What is the surface area of a sphere with a diameter of 8 cm?

$$\begin{aligned} S.A. &= 4\pi r^2 \\ &= 4\pi 4^2 \\ &= 64\pi \\ &\approx 201.1 \text{ cm}^2 \end{aligned}$$

I put a 5 cm cube inside a 6 cm cube. How much volume is left in the 6 cm cube?



$$\begin{array}{r} 216 \\ - 125 \\ \hline 91 \text{ cm}^3 \end{array}$$

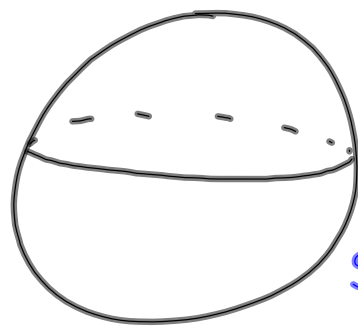
What is the volume of a pyramid that has a height of 6 cm and a square base with each side being 10 cm in length?

$$\begin{aligned} V &= \frac{1}{3} B \cdot h \\ &\quad \uparrow \\ &\quad \text{area of the base} \\ &\quad \downarrow \\ &= \frac{1}{3} \cdot 100 \cdot 6 \end{aligned}$$

A diagram of a square base with side length 10 cm. The number '100' is written inside the square, and the number '10' is written below the bottom edge. A red arrow points from the 'area of the base' label to the square.

4-1-14
6th Geo

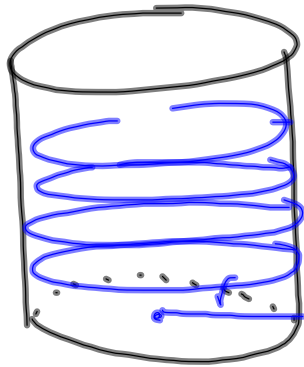
Volume vs. Surface Area



Sphere

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

$$S.A. = 4\pi r^2$$



$$V = \pi r^2 \cdot h$$

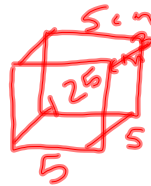
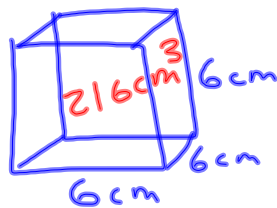
What is the volume of a cylinder with a height of 8cm and a diameter of 10cm?

$$\begin{aligned} V &= \pi r^2 h \\ &= \pi \cdot 5^2 \cdot 8 \\ &= 200\pi \\ &\approx 628.3 \text{ cm}^3 \end{aligned}$$

What is the surface area of a sphere that has a diameter of 6 cm?

$$\begin{aligned}
 S.A. &= 4\pi r^2 \\
 &= 4\pi \cdot 3^2 \\
 &= 36\pi \\
 &\approx 113.1 \text{ cm}^2
 \end{aligned}$$

A cube that is 5 cm is placed in a cube that is 6 cm. How much space is left inside the 6 cm cube?



$$\begin{array}{r}
 216 \\
 - 125 \\
 \hline
 91 \text{ cm}^3
 \end{array}$$

How much volume is left in a 10 cm sphere if a 9 cm sphere is placed inside it?



$$\begin{aligned}
 V &= \frac{4}{3}\pi r^3 \\
 &= \frac{4}{3}\pi \cdot 5^3 \\
 &\approx 523.6 \text{ cm}^3
 \end{aligned}$$



$$\begin{aligned}
 V &= \frac{4}{3}\pi r^3 \\
 &= \frac{4}{3}\pi \cdot 4.5^3 \\
 &\approx 381.7 \\
 &\approx 141.9 \text{ cm}^3
 \end{aligned}$$