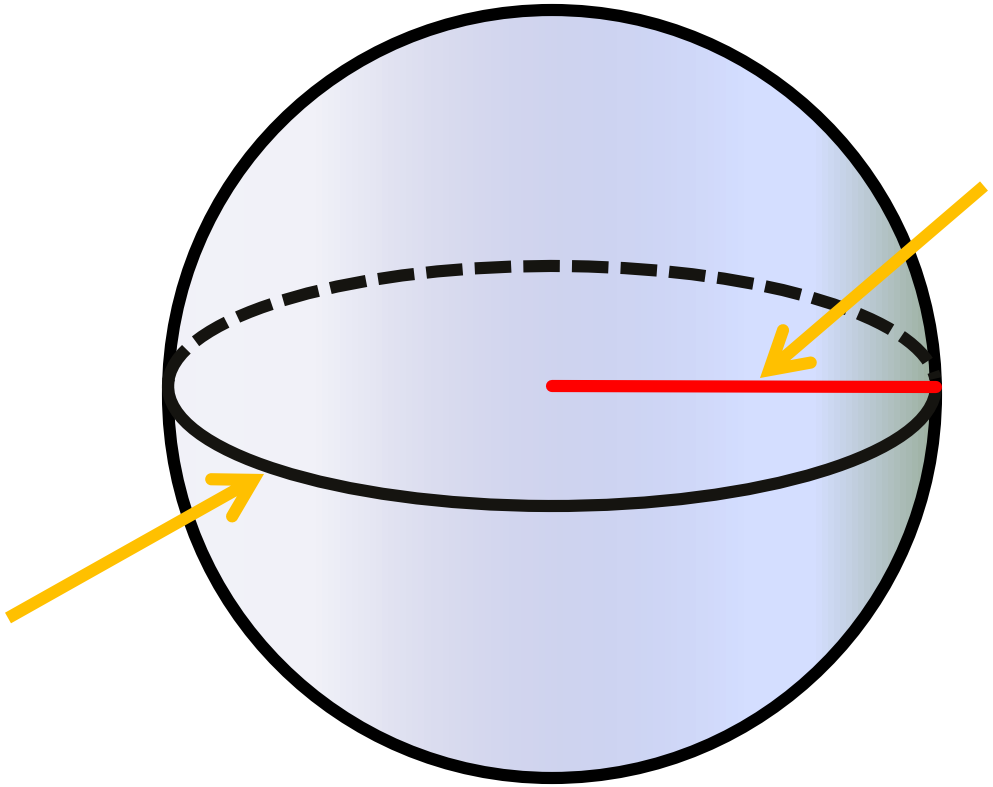
8.3

Volume of Spheres

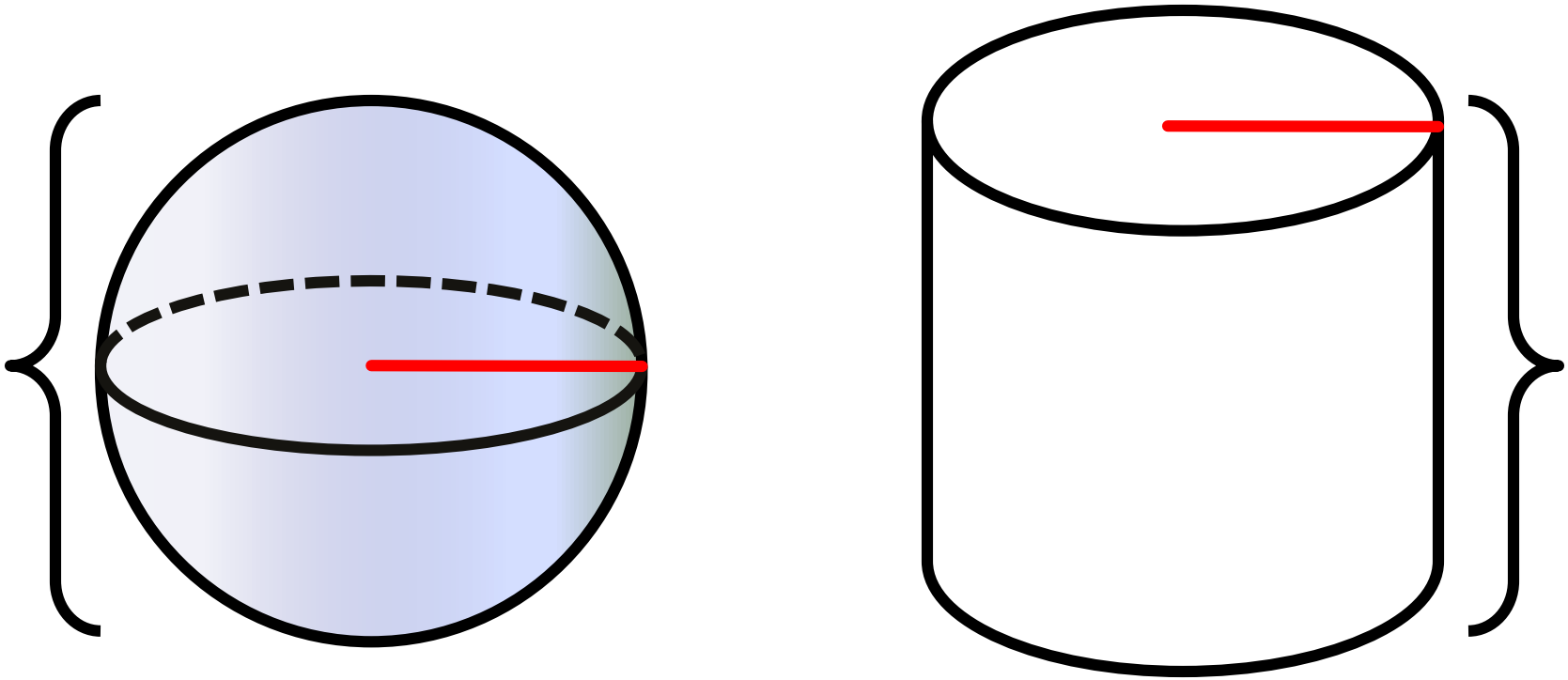
Parts of a Sphere



The _____ of a sphere is the biggest circle that can be drawn on the surface of the sphere itself.

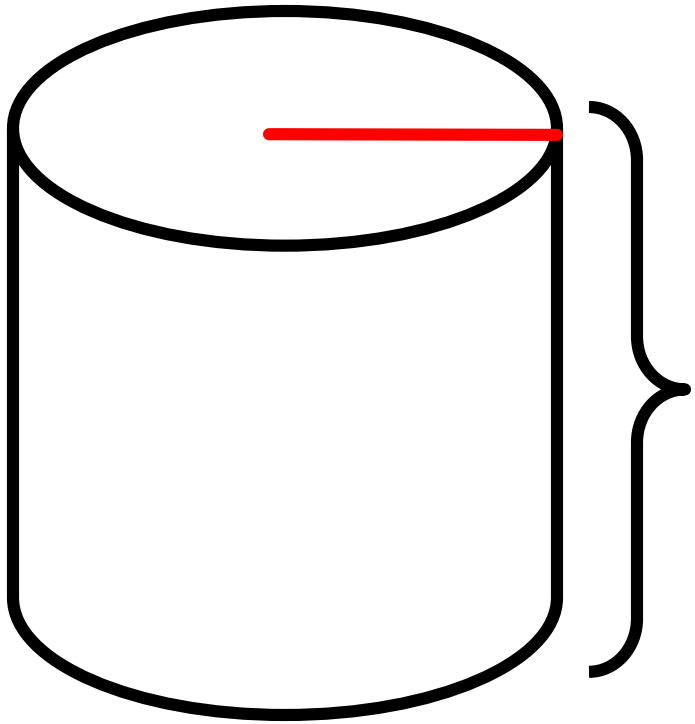
Deriving the formula of a Sphere

In order to derive this formula we first have to see the relationship between a cylinder with similar radius and height.

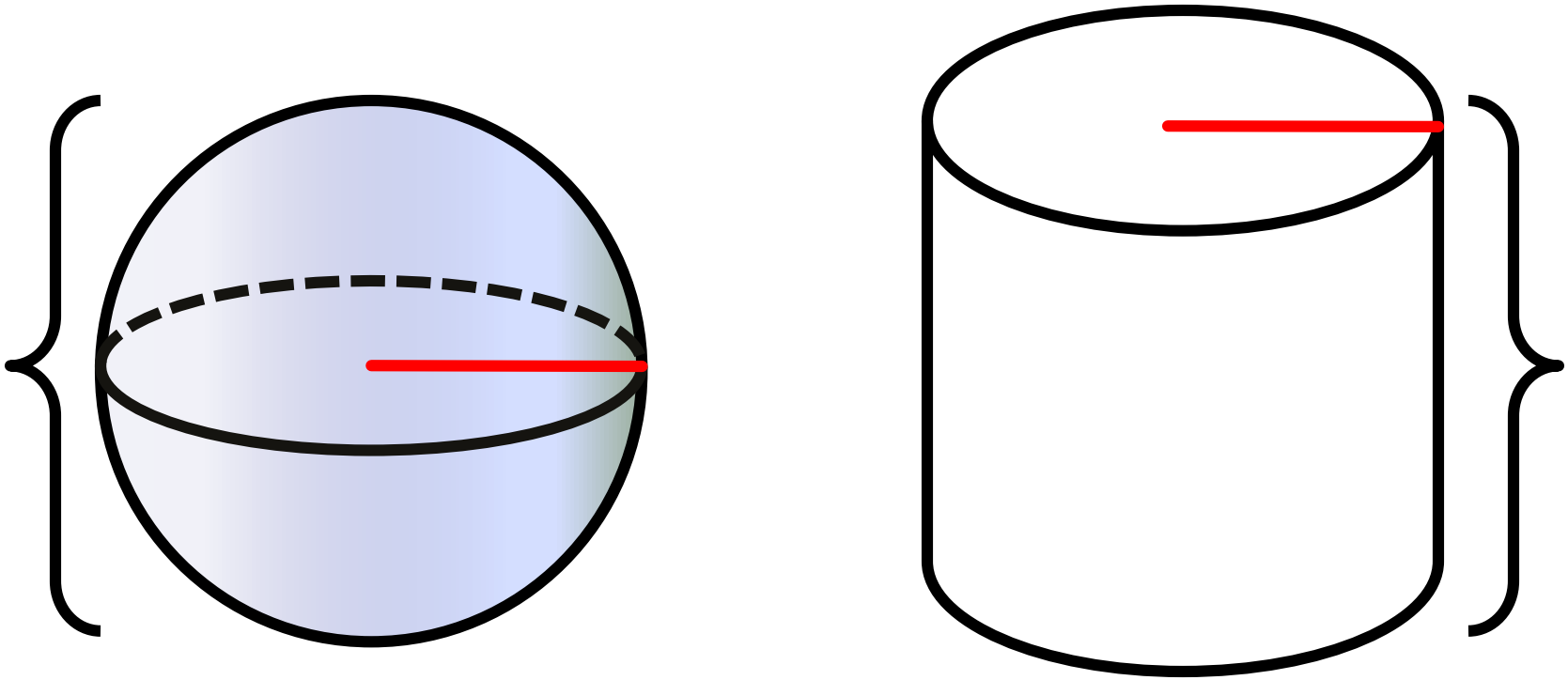


Deriving the formula of a Sphere

What's the volume of the this cylinder in terms of the given variables?



Deriving the formula of a Sphere

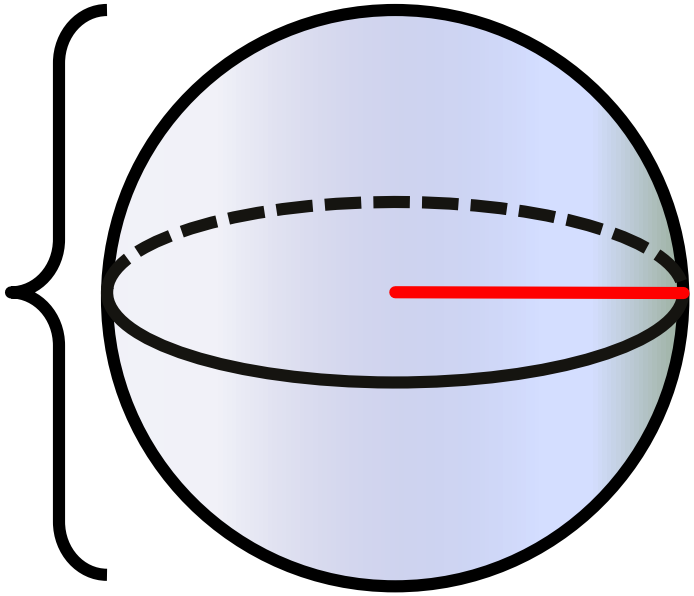


How much of the cylinder was filled by the sphere?

Deriving the formula of a Sphere

From the video we saw that the sphere would fill will up 2/3 of the cylinder.

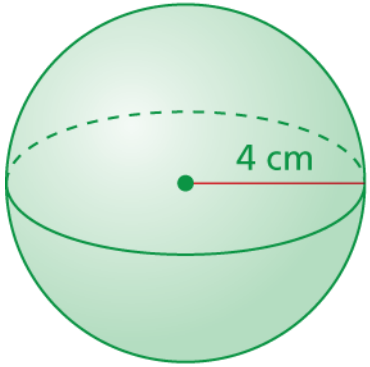
Using some algebra…



Volume Formula for a Sphere

APPLICATION

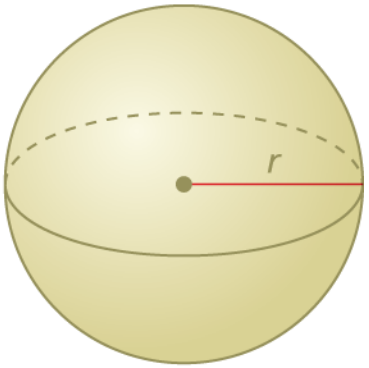
Find the volume of the sphere. Round your answer to the nearest tenth.



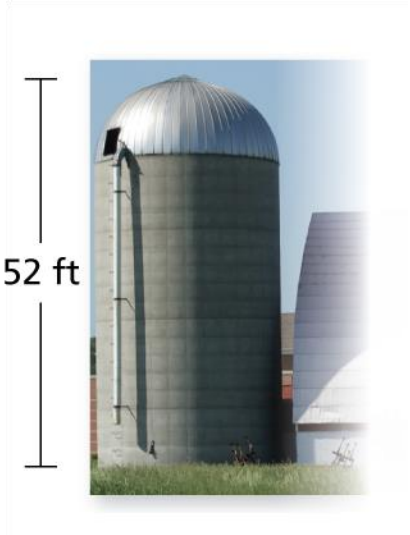
APPLICATION

Find the radius of the sphere.

Volume $= 288\pi$ in.^{3}



APPLICATION

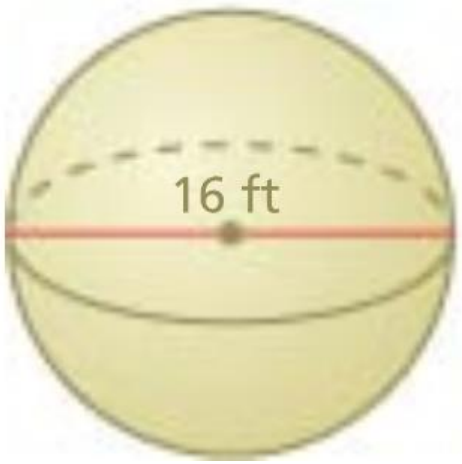


A hemisphere is one-half of a sphere. The top of the silo is a hemisphere with a radius of 12 feet. What is the volume of the silo? Round your answer to the nearest thousand.

PRACTICE

Find the volume V or radius r of the sphere. Round your answer to the nearest tenth, if necessary.

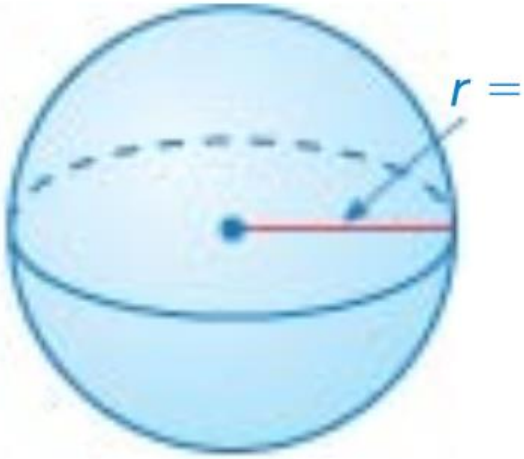
1.



PRACTICE

Find the volume V or radius r of the sphere. Round your answer to the nearest tenth, if necessary.

2.

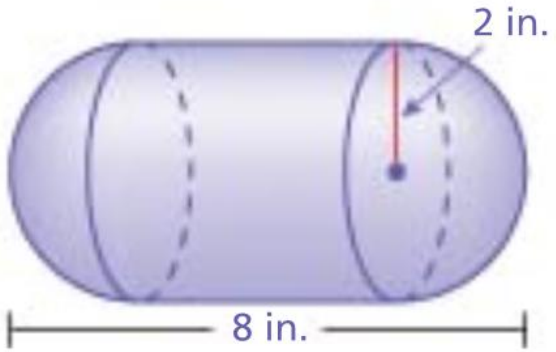


Volume $= 36\pi$ m^3

PRACTICE

Find the volume of the composite solid. Round your answer to the nearest tenth.

3.



PRACTICE

Find the volume of the composite solid. Round your answer to the nearest tenth.

4.