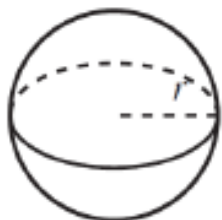


Surface Area and Volume of Spheres

SOL G.13 (2009)

Geometry Formula Sheet



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

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

A sphere is made up of points in space that are all equidistant from a center point. Basically, a sphere is a circle in three dimensions.

Example 1: The diameter of the moon is about 3474 km. How many square kilometers of land are on the moon? Round to the nearest whole square kilometer.



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

$$S.A. = 4\pi(1737)^2$$

$$S.A. = 12068676\pi$$

$$\text{About } 37,914,864 \text{ km}^2$$

1. Formula
2. Substitute measurements.
Don't forget to divide the diameter by 2 to find the radius.
3. Simplify.
4. Round final answer to nearest whole.

Example 2: The town of Darwin, Minnesota boasts the world's largest ball of twine. Francis A. Johnson rolled a ball of twine with a diameter of about 12 feet. How many cubic feet of twine make up his ball? Round to the nearest tenth.

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

$$V = \frac{4}{3}\pi(6)^3$$

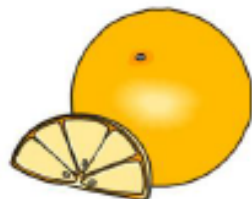
$$V = 288\pi$$

$$\text{About } 904.8 \text{ ft}^3$$

1. Formula
2. Substitute measurements.
Don't forget to divide the diameter by 2 to find the radius.
3. Simplify.
4. Round final answer to nearest whole.

Practice

1. Zack and Holly are peeling oranges. Zack's orange has a diameter of 11 centimeters and Holly's orange has a diameter of 8.5 centimeters. Since Zack's orange is larger, he will need to peel more rind. How much more?



2. There are about $1,332,000,000 \text{ km}^3$ of water in the Earth's oceans. How does this compare to the volume of the moon? (For example, is it three times the volume of the moon, $\frac{1}{2}$ the volume of the moon, etc.)



3. A town is replacing its outdoor trash cans. The new trash can resembles the sketch shown below. How much trash can each trash can hold? Round to the nearest tenth.

