



The National
Orthodox School
Shmaisani

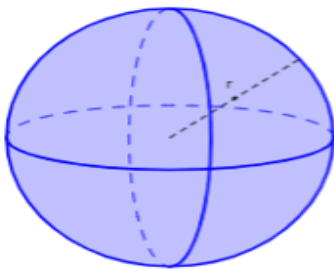
Name: _____ Worksheet(3) volume and surface area of a sphere
Grade:8(A, B)

Subject : Math (Unit (7):Mensuration of planes and solids)

Date :

Objective: Find the volume and surface area of spheres.

Surface Area and Volume of Sphere

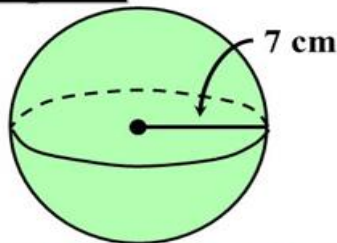


$$\text{Surface Area} = 4\pi r^2$$

$$\text{Volume} = \frac{4}{3} \pi r^3$$

Example 1 Find the surface area of a sphere

Find the surface area of the sphere.



Solution

$$\begin{aligned} S &= 4\pi r^2 \\ &= 4\pi (7)^2 \\ &= 196\pi \\ &\approx 615.75 \end{aligned}$$

Formula for surface area of a sphere

Substitute 7 for r .

Simplify.

Use a calculator.

The surface area of the sphere is about 615.75 square centimeters.

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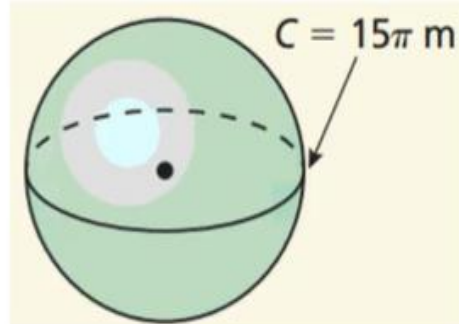
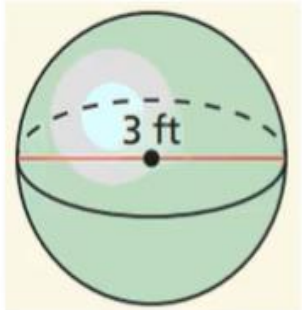
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Exercise 1:

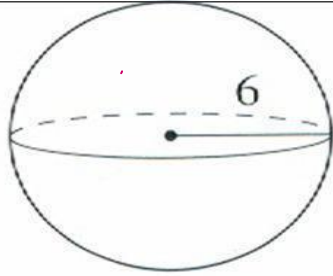
Find the surface area of each sphere. ***(in terms of π)***



Exercise(2): If the surface area of a sphere is 784π cm², find its radius?

Example 2:

Volume of Spheres



To find the volume of a sphere use the formula in the blue box.

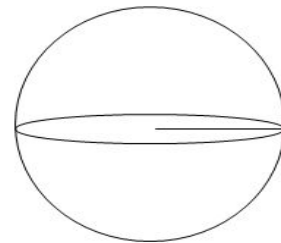
$$v = \frac{4}{3} \pi r^3$$

$$\begin{aligned} v &= \frac{4}{3} \pi r^3 \\ &= \frac{4}{3} (3.14)(6)^3 \\ &= \frac{4}{3} (678.24) \\ &= 904.32 \text{ units}^3 \end{aligned}$$

Exercise 3:

Find the volume of the sphere, given that the diameter is 10 inches. *(in terms of π)*

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



Exercise 4: Find the diameter of a sphere

if its volume is $\frac{500}{3}\pi \text{ cm}^3$?

Exercise 5: Find the surface area

(in terms of π) of a sphere

if its volume is $\frac{256}{3}\pi \text{ cm}^3$?

Exercise 6:

If the surface area of a sphere is 1256 m² ,

find : a)its radius? b)its volume ?

(use $\pi \approx 3.14$)

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