

Spring egg geometry for CBSE Class 10

CBSE Math Revision · CBSE Class 10 (Class 9 can try most of it) · Student sheet

Name _____

Class _____

Date _____

No calculator. Use $\pi = 22/7$ throughout.

Starter (5 minutes)

1. Find the curved surface area of a hemisphere of radius 7 cm. (Use $\pi = 22/7$.)
2. Find the volume of a cone of radius 7 cm and height 6 cm. (Use $\pi = 22/7$.)
3. Find the slant height of a cone with radius 6 cm and height 8 cm.
4. Find the surface area of a sphere of radius 7 cm. (Use $\pi = 22/7$.)

Main activity (35 minutes)

Task A: A hemisphere-and-cone egg

A wooden egg is a hemisphere of radius 7 cm joined to a cone of radius 7 cm and height 24 cm. Use $\pi = 22/7$.

- a. Find the volume of the egg.
- b. Find the total surface area of the egg.
- c. The egg is painted at ₹0.50 per cm^2 . Find the cost.

Task B: Melt and recast

Use $\pi = 22/7$.

- a. A solid chocolate sphere of radius 7 cm is melted and made into small spheres of radius 1.75 cm. How many small spheres are made?
- b. A cylinder of radius 7 cm and height 20 cm is full of melted chocolate. It is poured into hemispherical moulds of radius 3.5 cm. How many moulds can be filled completely?
- c. Find the surface area of one small sphere of radius 3.5 cm, to wrap it in foil.

Task C: An egg in a box

A spherical chocolate egg of radius 3.5 cm fits exactly inside a cube-shaped box of side 7 cm. Use $\pi = 22/7$.

- a. Find the volume of empty space in the box.
- b. What fraction of the box does the egg fill?
- c. The box has no lid. Find the area of card needed to make it.

Extension

1. An egg is a hemisphere of radius 7 cm on a cone of radius 7 cm. What height must the cone have for the cone and the hemisphere to have equal volumes?
2. How many spheres of radius 1 cm can be made by melting a sphere of radius 5 cm? What is the ratio of the total surface area of the small spheres to that of the big sphere?