Unit 5 · Area and Volume

HARDER WORKSHEET

Full marks 25

Name _____ Class _____ Roll no. _____ Date _____ Marks _____ / 25

1 Find the unknown [3]

Solve the following problem. Show your working.

A square pyramid holds 384 cm^3 and is 8 cm high. Find its total surface area.

Answer: _____

2 Show it [3]

Answer the following question.

A cone is rolled from a sector of a circle of radius 12 cm whose angle is 120°. Show that the cone's radius is 4 cm, and find its volume. ($\pi = 22/7$)

3 Is the claim true? [2]

Answer the following question. Give a reason.

Sita says: "If you double a square pyramid's base edge and halve its height, its volume stays the same, because one change cancels the other." Is she right?

4 Spot the error [3]

Find the mistake in the working and correct it.

An ice cream is a cone 10 cm high with a hemisphere of ice cream on top, both of radius 3 cm. Bikash found the area of its outside as the cone's total surface area plus the hemisphere's total surface area: $\pi\, r(r + l) + 3\pi\, r^2 \approx 211.58$ cm^2. ($\pi = 22/7$)

5 Melt and recast [3]

Solve the following problem. Show your working.

A solid metal cylinder of radius 6 cm and height 14 cm is melted and cast into cones of radius 3 cm and height 7 cm. How many cones are made?

Answer:

6 Work backwards [3]

Solve the following problem. Show your working.

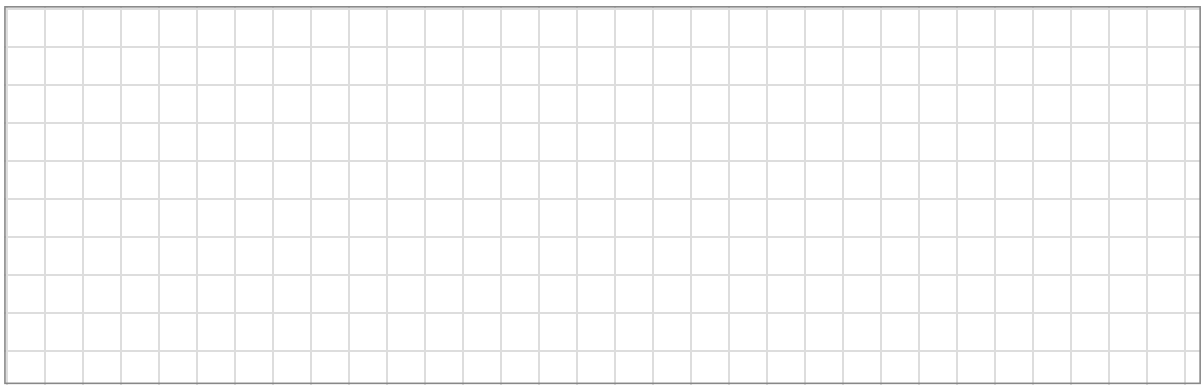
The cone-shaped roof of a round temple has a radius of 7 m. Painting its curved surface at Rs 120 a square meter costs Rs 59,400. How high is the roof? ($\pi = 22/7$)

Answer:

7 In a real setting [4]

Solve the following problem. Show your working.

A tent for a school camp is a cylinder 2 m high with a cone on top, both of radius 3.5 m; the cone's slant height is 3.7 m. Canvas costs Rs 250 a square meter. Find the cost of the canvas (walls and roof, no floor) and how many cubic meters of air the tent holds. ($\pi = 22/7$)



Answer: _____

8 Make your own [2]

Answer the following question.

Design a square pyramid whose base edge, vertical height and slant height are all whole numbers of centimeters. Give its volume and total surface area.

9 Think [2]

Think, then answer.

Sand poured from a truck makes a cone-shaped heap whose sides always slope at the same angle, however big it grows. When the heap is twice as high, how many times as much sand does it hold?