Sri aurobindo Society



केंद्रीय माध्यमिक शिक्षा बोर्ड CENTRAL BOARD OF SECONDARY EDUCATION

Curriculum Aligned Competency Based Test Items Mathematics Class 9 – Chapter 13 Surface Area and Volume

Raju designs a hut for homeless people. The hut is a combination of a cuboid and a right cone. The top of the hut is a cone with radius 4 m and height 1 m. It is made of economical material. The floor of the tent is covered with rugs.

The total height of the tent is 4.5 m. The cuboidal part of the tent is 6 m long and 5 m wide.

SAS21M09S1301

What is the outer surface area $(in m^2)$ of the hut?

A. 77

1

- B. 77+4π√17
- C. 137+4π√17
- D. $137+4\pi(4+\sqrt{17})$

SAS21M09S1302

2 The length and width of a rug used for the floor are 2.6 m and 2 m respectively. What is the minimum number of rugs required to cover the floor of the tent house?

This is the picture of a gas balloon filled with helium gas.
This balloon has 18 faces that are square in shape and 8 equilateral faces that are triangular.

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Mathematics Class 9 – Chapter 13







D.

SAS21M09S1304

4 The side length of the square is 20 cm. What is the total surface area of the balloon?

Raghav bought this planter. The radius of the rim is 14 cm. The curved surface area of the planter is 1848 cm². SAS21M09S1305 What is the height of the planter? 5 SAS21M09S1306 6 What is the volume of the planter?

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Mathematics Class 9 – Chapter 13

The height of the box is 25 cm. SAS21 What is the surface area (in cm ²) of the box? A. 3500 B. 4700 C. 5900 D. 30000 SAS21 A shopkeeper store cubes in it. The side length of one cube is 9 cm. What would be the maximum number of cubes the shopkeeper can store in a box? (All cube inside the box.) SAS21 Rajan packs a football into a cubical cardboard box. The radius of the football is 11 cm. Ra margin of 1 cm from all the sides of the box while packing. What is the side length of the cardboard box? A. 11 cm B. 20 cm C. 22 cm D. 24 cm This is the picture of an ice-cream cone.	wooden box.	an party manufactures wooden boxes. diven below is the
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Mathematics Class 9 – Chapter 13

SAS21M09S1310



What is the volume (in cm^3) of the empty part of the cone?

- Α. 12π
- B. 15π
- C. 19π
- D. 20π

Answers

Mathematics Class 9 – Chapter 13

Item Number	Question 1
Question Code	SAS21M09S1301
Grade & Chapter Name	Grade 9 Surface Area and Volume
Concept Sub-concept	Mensuration Surface Area of Combination of Solids
Competency	Interpret & Evaluate
Item Type	Multiple Choice Question
Full Credit (Full Score)	B. 77+4π√17
No Credit (No Score)	Any other response or missing response

Item Number	Question 2
Question Code	SAS21M09S1302
Grade & Chapter Name	Grade 9 Surface Area and Volume
Concept Sub-concept	Mensuration Surface Area of Combination of Solids
Competency	Employ
Item Type	Closed Constructed Response
Full Credit (Full Score)	5 5 rugs 6 6 rugs
No Credit (No Score)	Any other response or missing response

Item Number	Question 3
Question Code	SAS21M09S1303
Grade & Chapter Name	Grade 9 Surface Area and Volume
Concept Sub-concept	Mensuration Surface Area of Combination of Solids
Competency	Formulate
Item Type	Multiple Choice Question
Full Credit (Full Score)	A. Image
No Credit (No Score)	Any other response or missing response

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Mathematics Class 9 – Chapter 13

Item Number	Question 4
Question Code	SAS21M09S1304
Grade & Chapter Name	Grade 9 Surface Area and Volume
Concept Sub-concept	Mensuration Surface Area of Combination of Solids
Competency	Employ
Item Type	Closed Constructed Response
Full Credit (Full Score)	$(7200 + 800\sqrt{3})$ (7200 + 800 $\sqrt{3}$) cm ² 8585.6 cm ²
No Credit (No Score)	Any other response or missing response
Item Number	Question 5
Question Code	SAS21M09S1305
Grade & Chapter Name	Grade 9 Surface Area and Volume
Concept Sub-concept	Mensuration Surface Area of Cylinder
Competency	Employ
Item Type	Closed Constructed Response
Full Credit (Full Score)	21 cm
No Credit (No Score)	Any other response or missing response
Item Number	Question 6
Question Code	SAS21M09S1306
Grade & Chapter Name	Grade 9 Surface Area and Volume
Concept Sub-concept	Mensuration Volume of Cylinder
Competency	Employ
Item Type	Closed Constructed Response
Full Credit (Full Score)	4116πcm ³
No Credit (No Score)	Any other response or missing response
Item Number	Question 7
Question Code	SAS21M09S1307
Grade & Chapter Name	Grade 9 Surface Area and Volume
Concept Sub-concept	Mensuration Surface Area of Cuboid
Competency	Employ
Item Type	Multiple Choice Question
Full Credit (Full Score)	B. 4700
No Credit (No Score)	Any other response or missing response



Mathematics Class 9 – Chapter 13

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Item Number	Question 8
Question Code	SAS21M09S1308
Grade & Chapter Name	Grade 9 Surface Area and Volume
Concept Sub-concept	Mensuration Volume of Cuboid
Competency	Interpret & Evaluate
Item Type	Closed Constructed Response
Full Credit (Full Score)	41 (30x40x25)/(9x9x9)= 41.15 . Exact answer = 41 as all cubes should fit in it)
No Credit (No Score)	Any other response or missing response

Item Number	Question 9
Question Code	SAS21M09S1309
Grade & Chapter Name	Grade 9 Surface Area and Volume
Concept Sub-concept	Mensuration Surface Area of Combination of Solids
Competency	Employ
Item Type	Multiple Choice Question
Full Credit (Full Score)	D. 24 cm
No Credit (No Score)	Any other response or missing response

Item Number	Question 10
Question Code	SAS21M09S1310
Grade & Chapter Name	Grade 9 Surface Area and Volume
Concept Sub-concept	Mensuration Volume of Cone
Competency	Employ
Item Type	Multiple Choice Question
Full Credit (Full Score)	D. 20π
No Credit (No Score)	Any other response or missing response