

GCSE Mathematics

H

Volume of Spheres, Cones & Pyramids

GCSE Maths Practice

Total Marks	Time	Questions
53	53 min	20

Instructions:

- Do not use a calculator when you see: 
- Answer all questions in the spaces provided.
- Show all your working - marks are awarded for method as well as final answers.
- Cross through any work you do not want to be marked.
- Check your answers if you have time at the end.

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Edexcel-style questions**Q1** 

Grade 6

Edexcel style

Find the volume of the sphere shown, leaving your answer in terms of π .

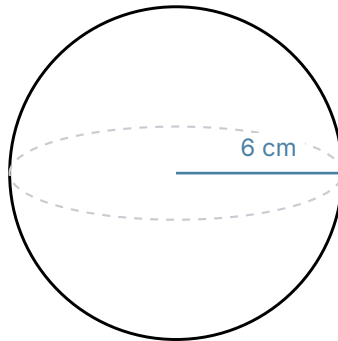


Diagram NOT accurately drawn

Answer _____

Q2

Grade 6

Edexcel style

The diagram shows a pyramid with a square base of side 6 cm and a perpendicular height of 8 cm. Find the volume of the pyramid.

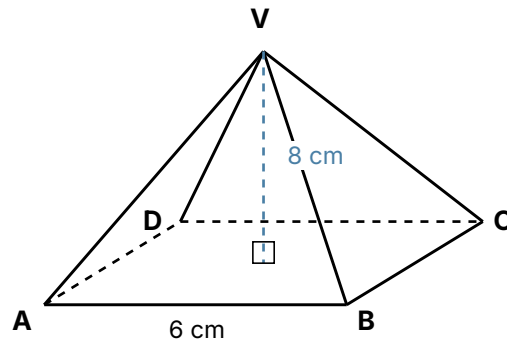


Diagram NOT accurately drawn

Answer _____

Q3

Grade 6

Edexcel style

Find the surface area of the sphere shown, leaving your answer in terms of π .

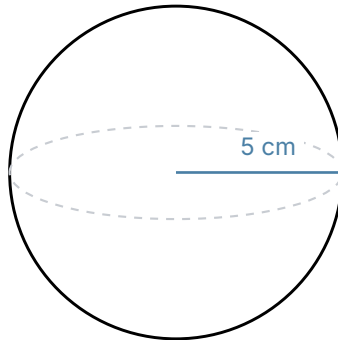


Diagram NOT accurately drawn

Answer _____

Q4

Grade 6

Edexcel style

The diagram shows a hemisphere of radius 6 cm. Find its volume, leaving your answer in terms of π .

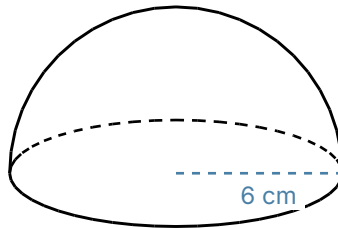


Diagram NOT accurately drawn

Answer _____

teachably

[2 marks]**Q5**

Grade 7

Edexcel style

An ice-cream consists of a cone of radius 3 cm and height 8 cm, topped with a hemisphere of the same radius sitting exactly on top of the cone's open end. Find the total volume of the ice-cream, leaving your answer in terms of π .

Answer _____

teachably

[3 marks]

AQA-style questions**Q6** 

Grade 6

AQA style

Find the volume of the sphere shown. Use $\pi = 3.14$.

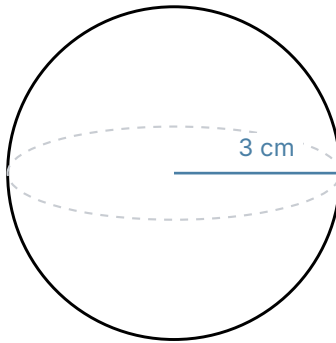


Diagram NOT accurately drawn

Answer _____

Q7

Grade 6

AQA style

A pyramid has a rectangular base measuring 5 cm by 8 cm, and a perpendicular height of 12 cm, as shown. Find the volume of the pyramid.

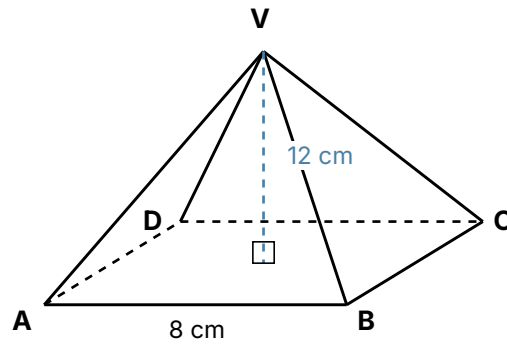


Diagram NOT accurately drawn

Answer _____

Q8

Grade 6

AQA style

Find the surface area of the sphere shown. Use $\pi = 3.14$.

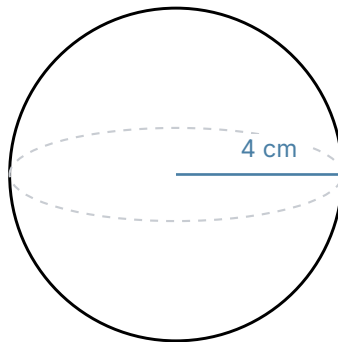


Diagram NOT accurately drawn

Answer _____

teachably**[2 marks]****Q9**

Grade 7

AQA style

A sphere has a volume of $36\pi \text{ cm}^3$. Find the radius of the sphere.

Answer _____

teachably**[3 marks]**

Q10

Grade 8

AQA style

Eight identical spherical marbles, each of radius 1.5 cm, are melted down and recast into a single cone of radius 3 cm. Find the height of the cone (assume no material is wasted).

Answer

teachably

[4 marks]

OCR-style questions**Q11** 

Grade 6

OCR style

Find the volume of the cone shown, leaving your answer in terms of π .

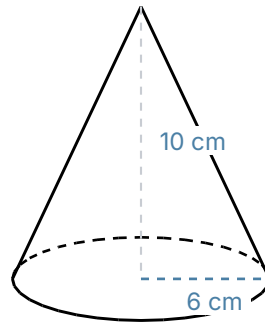


Diagram NOT accurately drawn

Answer _____

teachably

[2 marks]**Q12** 

Grade 7

OCR style

A pyramid has a right-angled triangular base with legs 6 cm and 8 cm, and a perpendicular height of 9 cm. Find the volume of the pyramid.

Answer _____

teachably

[3 marks]

Q13

Grade 7

OCR style

The cone shown has radius 3 cm and slant height 5 cm. Find its total surface area (the curved surface plus the circular base), leaving your answer in terms of π .

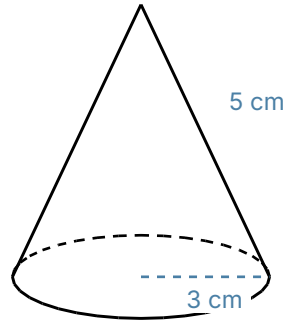


Diagram NOT accurately drawn

Answer _____

Q14

Grade 7

OCR style

The cone shown has radius 5 cm and a volume of $100\pi \text{ cm}^3$. Find the perpendicular height of the cone.

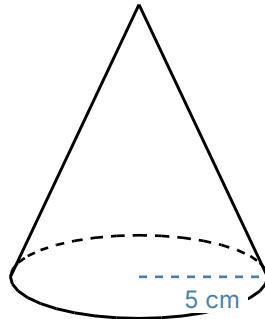


Diagram NOT accurately drawn

Answer _____

teachably

[2 marks]**Q15**

Grade 8

OCR style

A sphere and a cone have the same radius. The cone has the same volume as the sphere. If the radius is 5 cm, find the perpendicular height of the cone, showing that the height must always be 4 times the radius for this to be true (for any radius r).

Answer _____

teachably

[3 marks]

Teachably-style questions**Q16** 

Grade 6

Teachably style

Find the volume of the cone shown. Use $\pi = 3.14$.

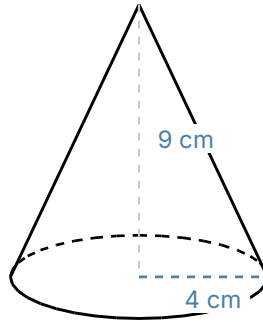


Diagram NOT accurately drawn

Answer _____

teachably**[2 marks]**

Q17

Grade 7

Teachably style

A pyramid has a volume of 100 cm^3 and a square base of side 5 cm, as shown. Find the perpendicular height of the pyramid.

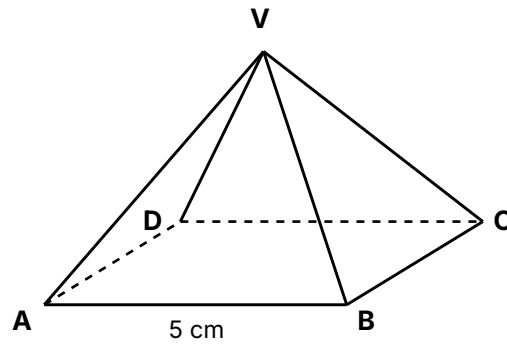


Diagram NOT accurately drawn

Answer _____

teachably

[3 marks]

Q18

Grade 7

Teachably style

The cone shown has radius 6 cm and perpendicular height 8 cm. Find its curved surface area.
Use $\pi = 3.14$.

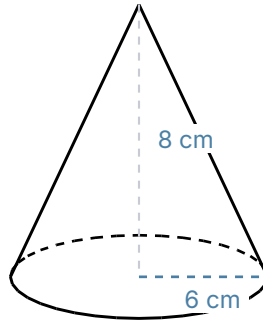


Diagram NOT accurately drawn

Answer _____

teachably

[3 marks]

Q19

Grade 8

Teachably style

The diagram shows a hemisphere of radius 7 cm. Find its total surface area (the curved surface plus the flat circular face). Use $\pi = 3.14$.

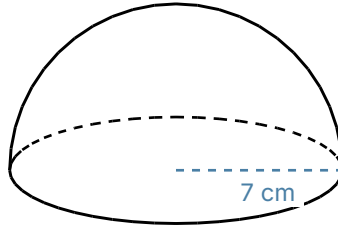


Diagram NOT accurately drawn

Answer _____

teachably

[3 marks]**Q20**

Grade 8

Teachably style

A spherical ball of radius 6 cm fits exactly inside a cylindrical box, touching the top, bottom, and curved side of the box. Find the volume of the empty space inside the box, leaving your answer in terms of π .

Answer _____

teachably

[4 marks]

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