



ACHIEVE ACADEMY

GCSE Maths — Higher Tier

Volume & Surface Area · Practice Booklet

NAME: _____

CLASS: _____

DATE: _____

☐ Developing

☒ Secure

☐ Greater Depth

Answer every question in the working space provided. Method marks are available for correct working even if the final answer is wrong. Check the time allowed with your tutor before you start.

Volume & Surface Area

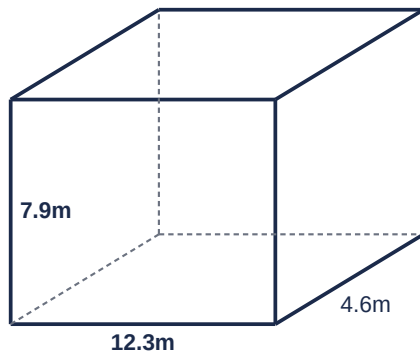
Total marks available: 123

● Volume & Surface Area

Q1

[4 marks]

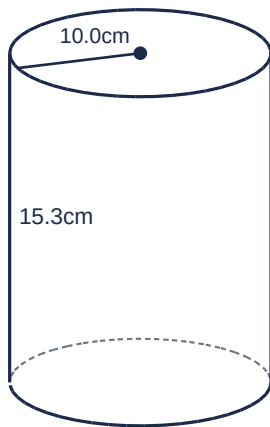
The cuboid below has length 12.3m, width 4.6m and height 7.9m. Calculate its total surface area, to 3 significant figures.



Q2

[4 marks]

The cylinder below has radius 10.0cm and height 15.3cm. Calculate its volume, to 3 significant figures.

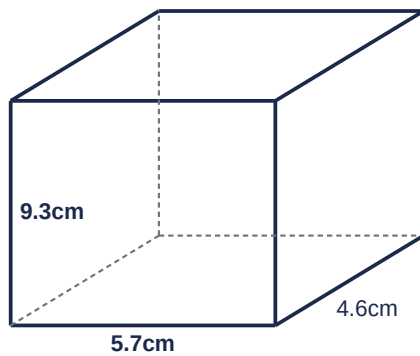


A large rectangular area with a dashed border, intended for the student to show their working and the final answer.

Q3

[4 marks]

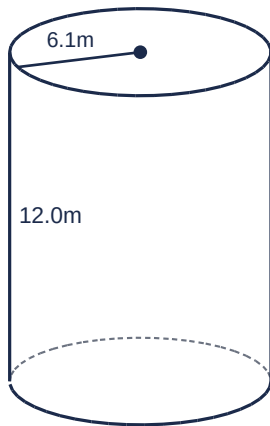
The cuboid below has length 5.7cm, width 4.6cm and height 9.3cm. Calculate its total surface area, to 3 significant figures.



Q4

[4 marks]

The cylinder below has radius 6.1m and height 12.0m. Calculate its volume, to 3 significant figures.

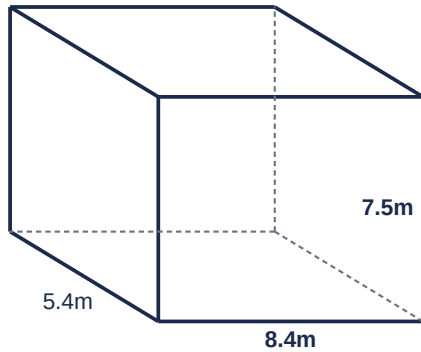


A large rectangular area with a dashed border, intended for the student to show their working and the final answer.

Q5

[4 marks]

The cuboid below has length 8.4m, width 5.4m and height 7.5m. Calculate its total surface area, to 3 significant figures.

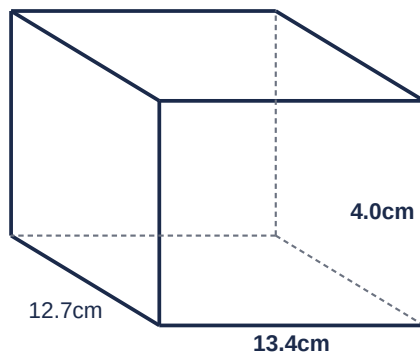


A large dashed rectangular box for the student's answer.

Q6

[4 marks]

The cuboid below has length 13.4cm, width 12.7cm and height 4.0cm. Calculate its total surface area, to 3 significant figures.

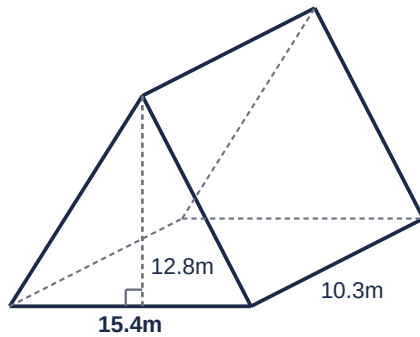


A large dashed rectangular box for the student's answer.

Q7

[4 marks]

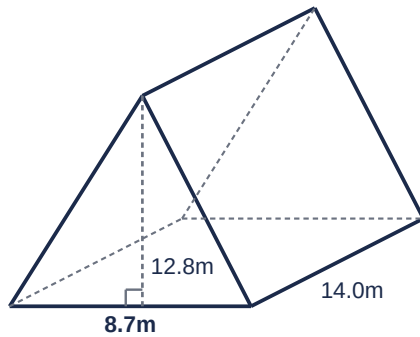
The triangular prism below has a triangular cross-section with base 15.4m and height 12.8m, and the prism is 10.3m long. Calculate its volume, to 3 significant figures.



Q8

[4 marks]

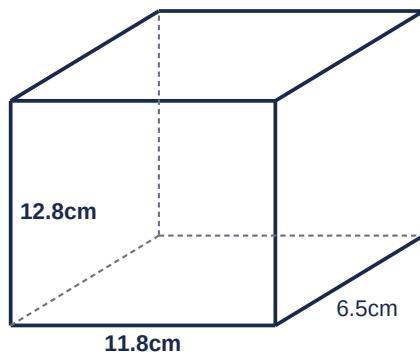
The triangular prism below has a triangular cross-section with base 8.7m and height 12.8m, and the prism is 14.0m long. Calculate its volume, to 3 significant figures.



Q9

[4 marks]

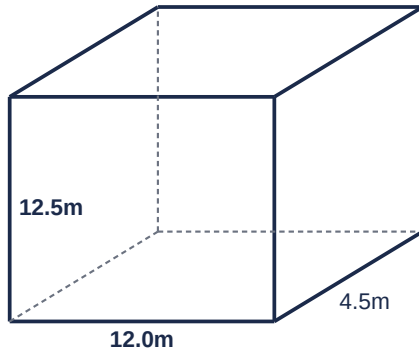
The cuboid below has length 11.8cm, width 6.5cm and height 12.8cm. Calculate its total surface area, to 3 significant figures.



Q10

[4 marks]

The cuboid below has length 12.0m, width 4.5m and height 12.5m. Calculate its volume, to 3 significant figures.

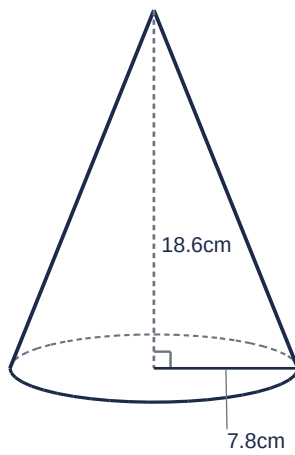


A large dashed rectangular box for the student to show their working.

Q11

[4 marks]

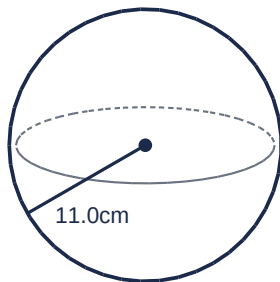
The cone below has radius 7.8cm and height 18.6cm. Calculate its volume, to 3 significant figures.



Q12

[4 marks]

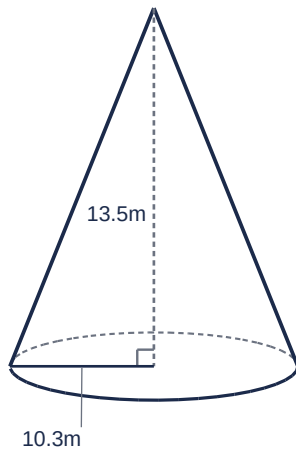
The sphere below has radius 11.0cm. Calculate its volume, to 3 significant figures.



Q13

[4 marks]

The cone below has radius 10.3m and height 13.5m. Calculate its volume, to 3 significant figures.

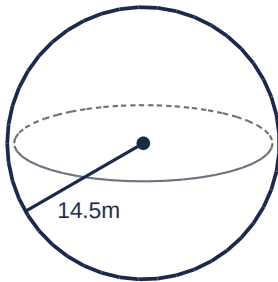


A large dashed rectangular box for the student's answer.

Q14

[4 marks]

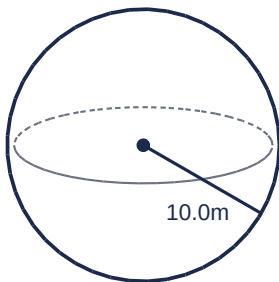
The sphere below has radius 14.5m. Calculate its volume, to 3 significant figures.



Q15

[4 marks]

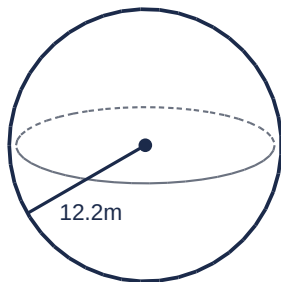
The sphere below has radius 10.0m. Calculate its volume, to 3 significant figures.



Q16

[4 marks]

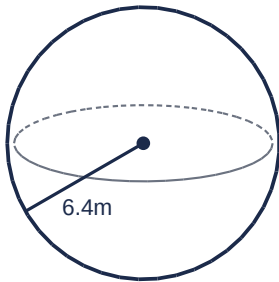
The sphere below has radius 12.2m. Calculate its volume, to 3 significant figures.



Q17

[4 marks]

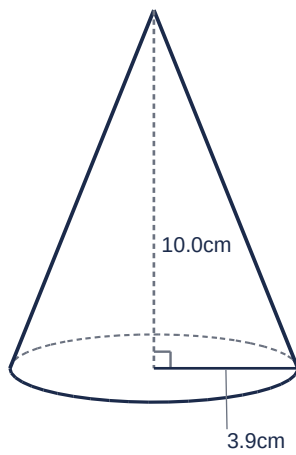
The sphere below has radius 6.4m. Calculate its volume, to 3 significant figures.



Q18

[4 marks]

The cone below has radius 3.9cm and height 10.0cm. Calculate its volume, to 3 significant figures.

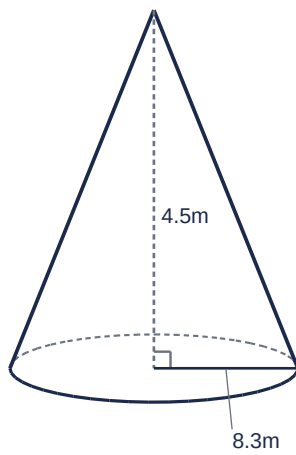


A large dashed rectangular box for the student's answer.

Q19

[4 marks]

The cone below has radius 8.3m and height 4.5m. Calculate its volume, to 3 significant figures.

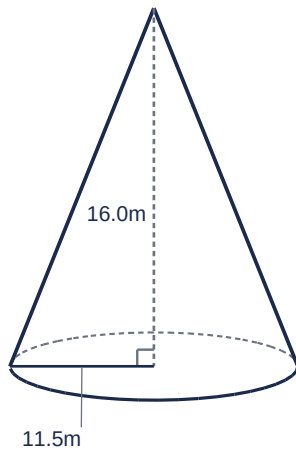


A large rectangular area with a dashed border, intended for the student to show their working and the final answer.

Q20

[4 marks]

The cone below has radius 11.5m and height 16.0m. Calculate its volume, to 3 significant figures.

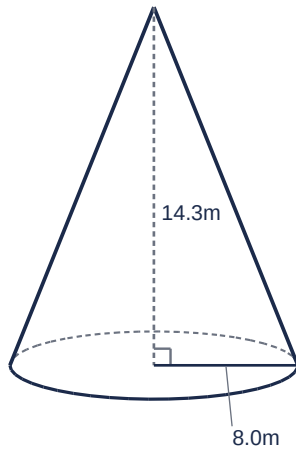


A large dashed rectangular box for the student's answer.

Q21

[5 marks]

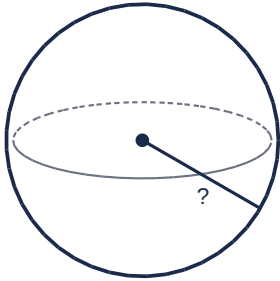
The cone below has radius 8.0m and (perpendicular) height 14.3m. Calculate its total surface area, to 3 significant figures.



Q22

[4 marks]

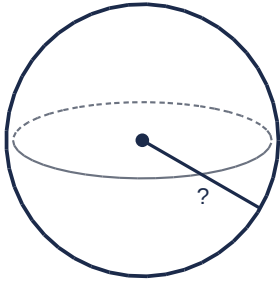
A sphere has a volume of 10306.0cm^3 . Calculate its radius, marked with a question mark, to 3 significant figures.



Q23

[4 marks]

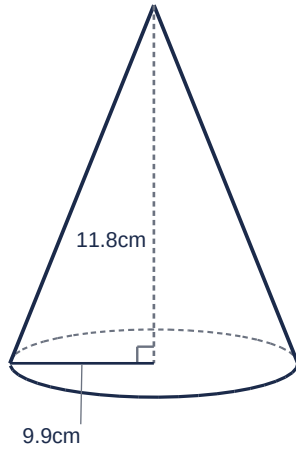
A sphere has a volume of 2572.4cm^3 . Calculate its radius, marked with a question mark, to 3 significant figures.



Q24

[5 marks]

The cone below has radius 9.9cm and (perpendicular) height 11.8cm. Calculate its total surface area, to 3 significant figures.

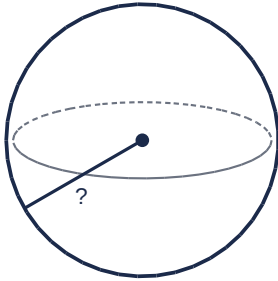


A large dashed rectangular box for the student's answer.

Q25

[4 marks]

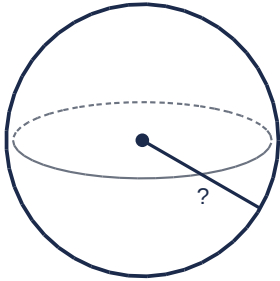
A sphere has a volume of 1317.1m^3 . Calculate its radius, marked with a question mark, to 3 significant figures.



Q26

[4 marks]

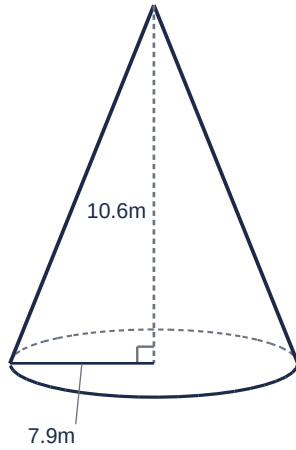
A sphere has a volume of 1563.5cm^3 . Calculate its radius, marked with a question mark, to 3 significant figures.



Q27

[5 marks]

The cone below has radius 7.9m and (perpendicular) height 10.6m. Calculate its total surface area, to 3 significant figures.

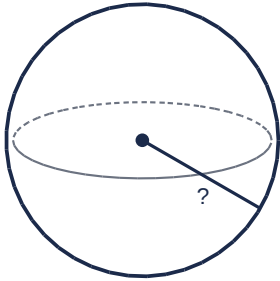


A large dashed rectangular box for the student's answer.

Q28

[4 marks]

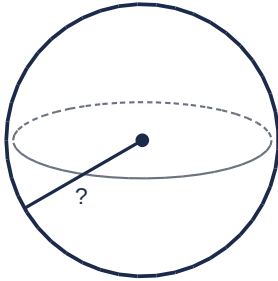
A sphere has a volume of 1767.1m^3 . Calculate its radius, marked with a question mark, to 3 significant figures.



Q29

[4 marks]

A sphere has a volume of 4849.0m^3 . Calculate its radius, marked with a question mark, to 3 significant figures.



Q30

[4 marks]

A sphere has a volume of 5424.6m^3 . Calculate its radius, marked with a question mark, to 3 significant figures.

