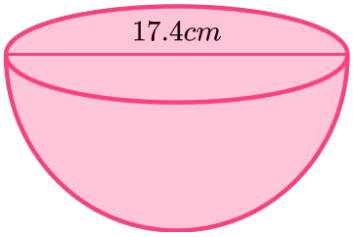
THIRD SPACE LEARNING

GCSE Exam Questions

Volume and Surface Area of a Hemisphere | Geometry & Measure

GCSE Exam Questions: Volume and Surface Area of a Hemisphere

1) The diagram shows a hemisphere with a diameter of $17.4cm$.



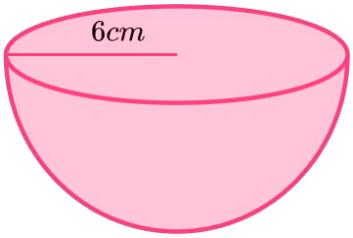
Work out the volume of the hemisphere.

Give your answer to 3 significant figures.

_____ cm^3

(3 marks)

2) **(a)** Shown below is a hemisphere.



Calculate the curved surface area of the hemisphere.

_____ cm^2

(2)

(b) Calculate the total surface area of the hemisphere.

Give your answer to 3 significant figures.

_____ cm^2

(2)

(4 marks)

GCSE Exam Questions: Volume and Surface Area of a Hemisphere

3) The volume of a hemisphere is $\frac{250}{3}\pi$.

Work out the exact total surface area of the solid hemisphere.

Give your answer as a multiple of π.

(5 marks)

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4) **(a)** Work out the volume of a hemisphere of radius $8cm$.

(3)

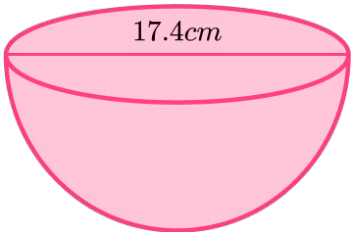
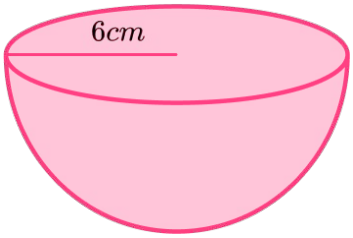
(b) Three hemispheres of radius $8cm$ are packed tightly into a cuboid as shown.

Work out the volume of the cuboid.

(4)

(7 marks)

GCSE Exam Questions: Volume and Surface Area of Hemispheres Answers

	Question	Answer	Marks
1)	The diagram shows a hemisphere with a diameter of 17.4cm.  Work out the volume of the hemisphere. Give your answer to 3 significant figures.	$\frac{4}{3} \times \pi \times 8.7^3 = 2758.33\ldots$ $2758.33 \div 2 = 1379.165\ldots$ 1380 cm^3	**(1)** **(1)** **(1)**
2) (a)	Shown below is a hemisphere.  Calculate the curved surface area of the hemisphere.	**(a)** $2 \times \pi \times 6^2$ 226.19cm^2	**(1)** **(1)**
(b)	Calculate the total surface area of the hemisphere. Give your answer to 3 significant figures.	**(b)** $\pi \times 6^2 = 113.097\ldots$ $229.19 + 113.097 = 339.29...$ 339 cm^2	**(1)** **(1)**
3)	The volume of a hemisphere is $\frac{250}{3}\pi$. Work out the exact total surface area of the solid hemisphere. Give your answer as a multiple of π.	$\frac{2}{3}\pi \times r^3 = \frac{250}{3}\pi$ $r^3 = 125$ $r = 5$ $3 \times \pi \times 5^2$ 75π	**(1)** **(1)** **(1)** **(1)** **(1)**

GCSE Exam Questions: Volume and Surface Area of Hemispheres Answers

	Question	Answer	Marks
4) (a)	Work out the volume of a hemisphere of radius $8cm$.	**(a)** $\frac{4}{3} \times \pi \times 8^3 = 2144.66$ $2144.66 \div 2$ $1072.33\ cm^3$	**(1)** **(1)** **(1)**
(b)	Three hemispheres of radius $8cm$ are packed tightly into a cuboid as shown.  Work out the volume of the cuboid.	**(b)** $8 \times 2 = 16$ $16 \times 3 = 48$ $48 \times 16 \times 8$ $6144\ cm^3$	**(1)** **(1)** **(1)** **(1)**

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