

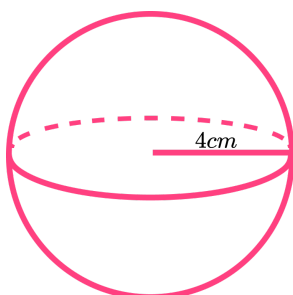
Volume and Surface Area of Spheres - Worksheet

Skill

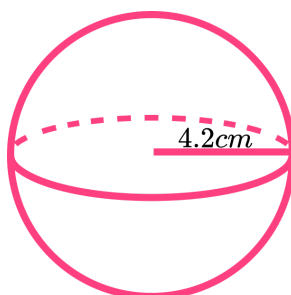
Group A - Volume of spheres

Work out the volume of these spheres. Give your answers to 3 significant figures.

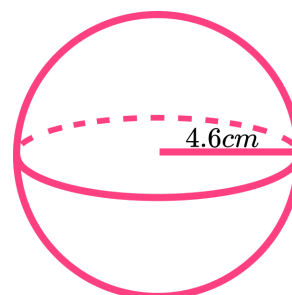
1)



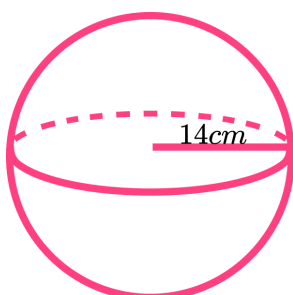
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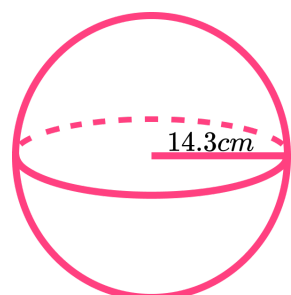
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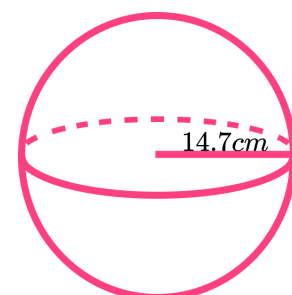
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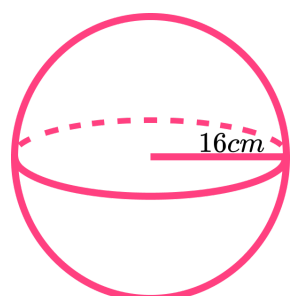
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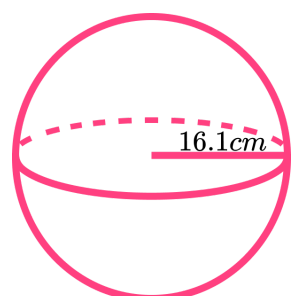
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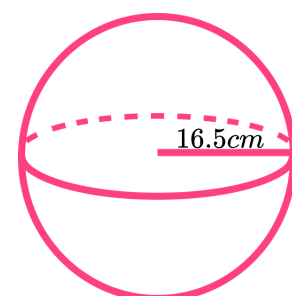
7)



8)



9)

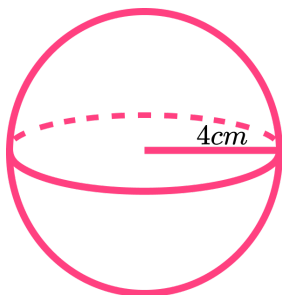


Volume and Surface Area of Spheres - Worksheet

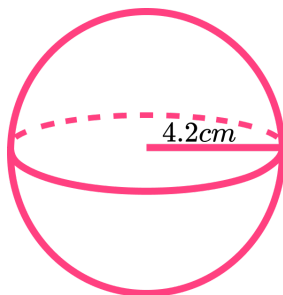
Group B - Surface area of spheres

Work out the surface area of these spheres. Give your answers to 3 significant figures.

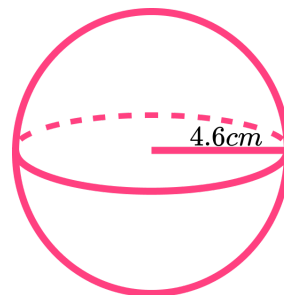
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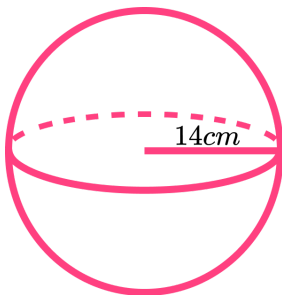
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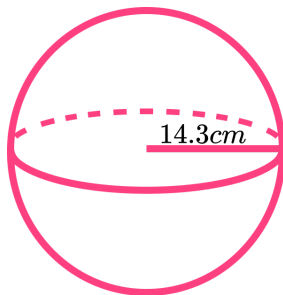
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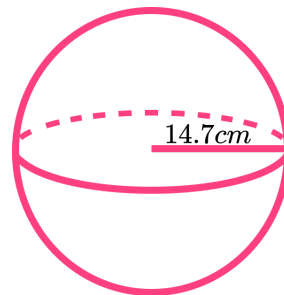
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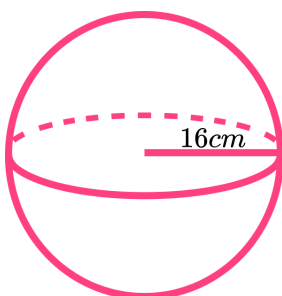
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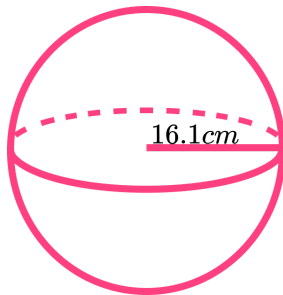
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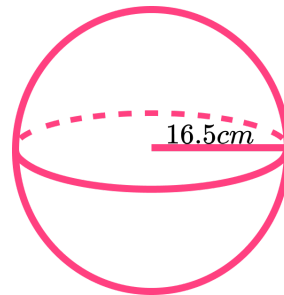
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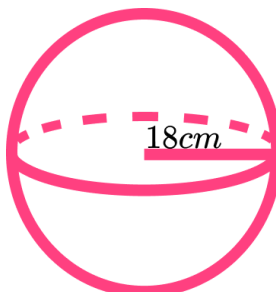
9)



Volume and Surface Area of Spheres - Worksheet

Applied

- 1) (a) Here is a sphere.



Work out its volume. Leave your answer in terms of π .

- (b) Work out its surface area. Leave your answer in terms of π .

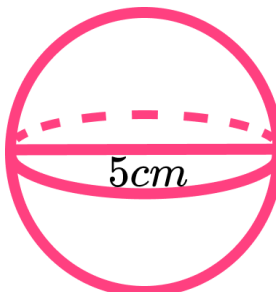
- 2) (a) Here is a hemisphere.



Work out its volume. Give your answer in terms of cm^3 to 3 significant figures.

- (b) Work out its surface area. Give your answer in terms of cm^2 to 3 significant figures.

- 3) (a) Here is a sphere.

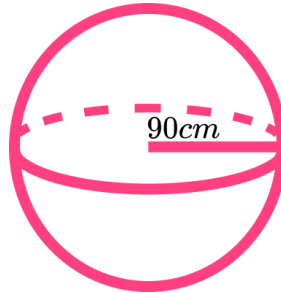


Work out its volume. Give your answer in terms of cm^3 to 3 significant figures.

- (b) Work out its surface area. Give your answer in terms of cm^2 to 3 significant figures.

Volume and Surface Area of Spheres - Worksheet

- 4) (a) Here is a sphere.



Work out its volume. Give your answer in terms of m^3 to 3 significant figures.

- (b) Work out its surface area. Give your answer in terms of m^2 to 3 significant figures.

- 5) (a) A sphere has a volume of $7500cm^3$. Work out its radius. Give your answer to 3 significant figures.
- (b) A different sphere has a surface area of $4200cm^2$. Work out its radius. Give your answer to 3 significant figures.

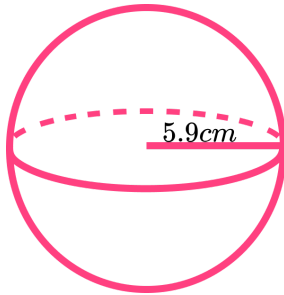
Volume and Surface Area of Spheres - Exam Questions

$$\text{Surface area of a sphere} = 4\pi r^2$$

$$\text{Volume of a sphere} = \frac{4}{3}\pi r^3$$

- 1) Here is a sphere.

..... cm^3
(2 marks)

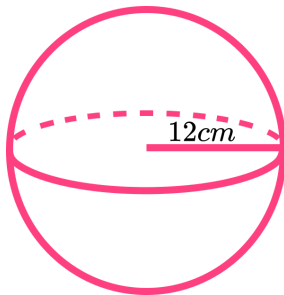


Calculate the volume of the sphere.

Give your answer to 3 significant figures.

-
- 2) Here is a sphere.

..... cm^2
(2 marks)



Calculate the surface area of the sphere.

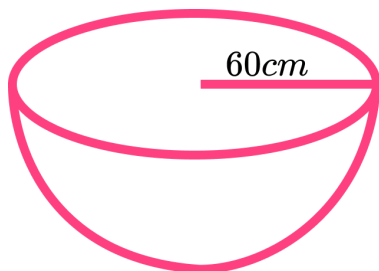
Leave your answer in terms of π .

Volume and Surface Area of Spheres - Exam Questions

- 3) A container is a hemisphere of radius 60cm .

..... minutes
(4 marks)

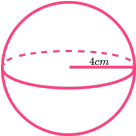
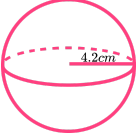
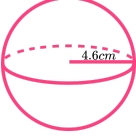
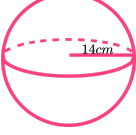
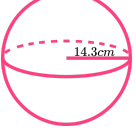
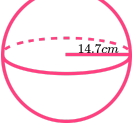
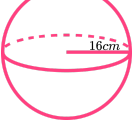
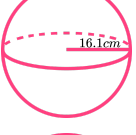
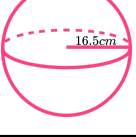
Water fills the container at a rate of $7\text{ litres per minute}$.



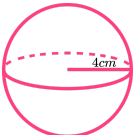
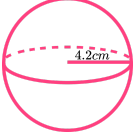
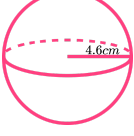
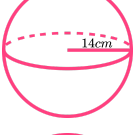
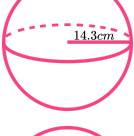
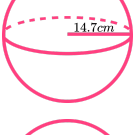
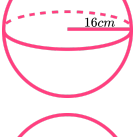
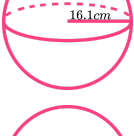

How long does it take to fill the container?

Give your answer to the nearest minute.

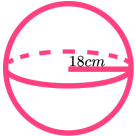


Volume and Surface Area of Spheres - Answers

	Question	Answer
	Skill Questions	
Group A	<p>Work out the volume of these spheres. Give your answers to 3 significant figures.</p> <p>1) </p> <p>2) </p> <p>3) </p> <p>4) </p> <p>5) </p> <p>6) </p> <p>7) </p> <p>8) </p> <p>9) </p>	<p>1) 268 cm^3</p> <p>2) 310 cm^3</p> <p>3) 408 cm^3</p> <p>4) 11500 cm^3</p> <p>5) 12200 cm^3</p> <p>6) 13300 cm^3</p> <p>7) 17200 cm^3</p> <p>8) 17500 cm^3</p> <p>9) 18800 cm^3</p>


Volume and Surface Area of Spheres - Answers

Group B	<p>Work out the surface area of these spheres. Give your answers to 3 significant figures.</p> <div> <div>1) </div> <div>2) </div> <div>3) </div> <div>4) </div> <div>5) </div> <div>6) </div> <div>7) </div> <div>8) </div> <div>9) </div> </div>	<div> <div>1) 201 cm^2</div> <div>2) 222 cm^2</div> <div>3) 266 cm^2</div> <div>4) 2460 cm^2</div> <div>5) 2570 cm^2</div> <div>6) 2720 cm^2</div> <div>7) 3220 cm^2</div> <div>8) 3260 cm^2</div> <div>9) 3420 cm^2</div> </div>
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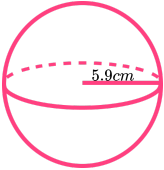
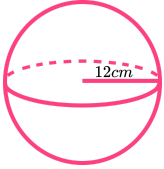
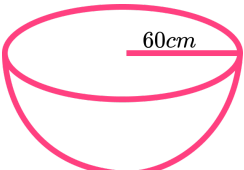
Volume and Surface Area of Spheres - Answers

	Question	Answer
	Applied Questions	
1)	<p>(a) Here is a sphere.</p>  <p>Work out its volume. Leave your answer in terms of π.</p> <p>(b) Work out its surface area. Leave your answer in terms of π.</p>	<p>(a) $36000\pi cm^3$</p> <p>(b) $3600\pi cm^2$</p>
2)	<p>(a) Here is a hemisphere.</p>  <p>Work out its volume. Give your answer in terms of cm^3 to 3 significant figures.</p> <p>(b) Work out its surface area. Give your answer in terms of cm^2 to 3 significant figures.</p>	<p>(a) $1530cm^3$</p> <p>(b) $763cm^2$</p>
3)	<p>(a) Here is a sphere.</p>  <p>Work out its volume. Give your answer in terms of cm^3 to 3 significant figures.</p> <p>(b) Work out its surface area. Give your answer in terms of cm^2 to 3 significant figures.</p>	<p>(a) $65.4cm^3$</p> <p>(b) $78.5cm^2$</p>

Volume and Surface Area of Spheres - Answers

<p>4)</p>	<p>(a) Here is a sphere.</p>  <p>Work out its volume. Give your answer in terms of m^3 to 3 significant figures.</p> <p>(b) Work out its surface area. Give your answer in terms of m^2 to 3 significant figures.</p>	<p>(a) $3.05m^3$</p> <p>(b) $10.2cm^2$</p>
<p>5)</p>	<p>(a) A sphere has a volume of $7500cm^3$. Work out its radius. Give your answer to 3 significant figures.</p> <p>(b) A different sphere has a surface area of $4200cm^2$. Work out its radius. Give your answer to 3 significant figures.</p>	<p>(a) $12.1cm$</p> <p>(b) $18.3cm$</p>

Volume and Surface Area of Spheres - Mark Scheme

	Question	Answer
	Exam Questions	
1)	<p>Here is a sphere.</p>  <p>Calculate the volume of the sphere. Give your answer to 3 significant figures.</p>	$\frac{4}{3} \times \pi \times 5.9^3 \text{ (1)}$ $= 860 \text{ cm}^3 \text{ (1)}$ <p style="text-align: right;">(2)</p>
2)	<p>Here is a sphere.</p>  <p>Calculate the surface area of the sphere. Leave your answer in terms of π.</p>	$4 \times \pi \times 12^2 \text{ (1)}$ $= 576\pi \text{ cm}^2 \text{ (1)}$ <p style="text-align: right;">(2)</p>
3)	<p>A container is a hemisphere of radius 60 cm. Water fills the container at a rate of $7 \text{ litres per minute}$.</p>  <p>How long does it take to fill the container? Give your answer to the nearest minute.</p>	<p>Volume:</p> $\frac{1}{2} \times \frac{4}{3} \times \pi \times 60^3$ $= 452389.3... \text{ cm}^3 \text{ (1)}$ <p>Rate:</p> $7 \text{ litres per minute}$ $= 7000 \text{ cm}^3 \text{ per minute (1)}$ <p>Time:</p> $452389.3... \div 7000 = 64.6... \text{ (1)}$ <p>Answer:</p> 65 minutes (1) <p style="text-align: right;">(4)</p>

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