

Outcome 3 - Calculating the volume of a sphere

Bronze examples

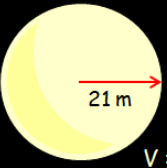
Examples... $V = \frac{4}{3} \pi r^3$

****Given on formula sheet****

- Sub into formula

$$V = 4 \div 3 \times 3.14 \times 7^3$$

$$= 1436.03 \text{ cm}^3$$



$$V = 4 \div 3 \times 3.14 \times 21^3$$

$$= 38\,772.72 \text{ m}^3$$

Silver examples

Examples... $V = \frac{4}{3} \pi r^3$

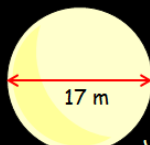
****Given on formula sheet****

- Sub into formula

radius = $\frac{1}{2} \times \text{diameter}$

$$V = 4 \div 3 \times 3.14 \times 4^3$$

$$= 267.95 \text{ cm}^3$$



$$V = 4 \div 3 \times 3.14 \times 8.5^3$$

$$= 2571.14 \text{ m}^3$$

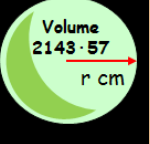
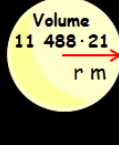
Gold examples

Examples... $V = \frac{4}{3} \pi r^3$

2143.57 = $4 \div 3 \times 3.14 \times r^3$
 $(4 \div 3 \times 3.14 = 4.19)$
 $r^3 = 2143.57 \div 4.19 = 511.59$
 $r = \sqrt[3]{511.59} = 8.0 \text{ cm}$

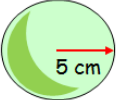
• Sub into formula • Side calculation
 • Divide • Cube Root

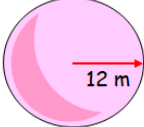
11 488.21 = $4 \div 3 \times 3.14 \times r^3$
 $(4 \div 3 \times 3.14 = 4.19)$
 $11\,488.21 \div 4.19 = 2741.82$
 $r = \sqrt[3]{2741.82} = 14.0 \text{ cm}$

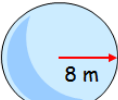



Bronze Questions

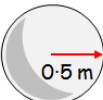
Find the volumes of the following spheres...

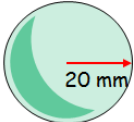
1 

2 

3 

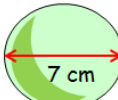
4 

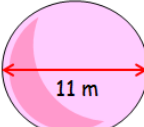
5 

6 

Silver Questions

Find the volumes of the following spheres...

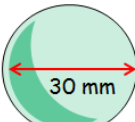
1 

2 

3 

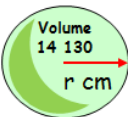
4 

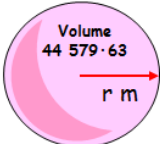
5 

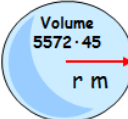
6 

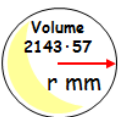
Gold Questions

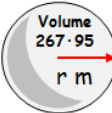
Find the missing radii of the following spheres...

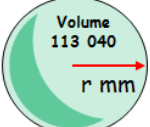
1 

2 

3 

4 

5 

6 

Bronze Answers

- | | |
|-----------------------------|---------------------------------|
| 1. $523\cdot33\text{ cm}^3$ | 2. $7234\cdot56\text{ m}^3$ |
| 3. $2143\cdot57\text{ m}^3$ | 4. $33\cdot49\text{ mm}^3$ |
| 5. $0\cdot52\text{ m}^3$ | 6. $33\ 493\cdot33\text{ mm}^3$ |

Silver Answers

- | | |
|----------------------------|----------------------------|
| 1. $179\cdot5\text{ cm}^3$ | 2. $696\cdot56\text{ m}^3$ |
| 3. $33\cdot49\text{ m}^3$ | 4. $14\cdot13\text{ mm}^3$ |
| 5. $0\cdot18\text{ m}^3$ | 6. $14\ 130\text{ mm}^3$ |

Gold Answers

- | | |
|----------|----------|
| 1. 15 cm | 2. 22 m |
| 3. 11 m | 4. 8 mm |
| 5. 4 m | 6. 30 mm |