




Check Your Understanding – Surface Area of Composite Solids

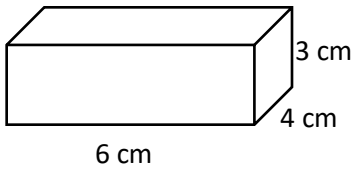
The table below identifies the key concepts from this unit.

1. Check your understanding by completing these questions.
2. Check your answers in the key provided.
3. In the table below, highlight the questions you got correct.
4. Ask peers/Dr. James about concepts where you can improve.

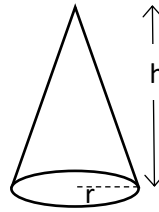
Key Concepts	 Mild	 Medium	 Spicy
Volume	1a, b, c, d, e	2, 3, 9, 10, 13	
Volume of Composite Solids		4, 5	6, 14
Missing Measures	7, 8	9, 10	11, 14
Conversions	12a, b, c, d	13	14

1. Calculate the volume of each of the solids below

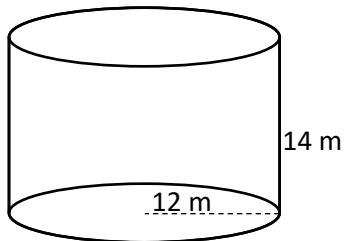
a)



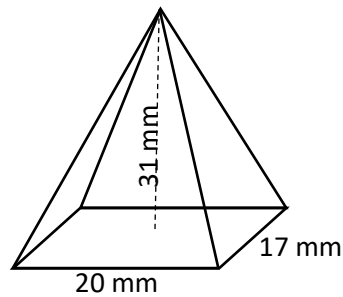
b) $r = 0.34 \text{ dm}$ and $h = 0.85 \text{ dm}$



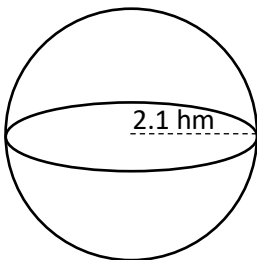
c)



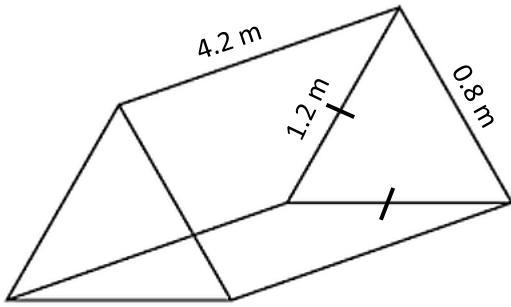
d) Pyramid



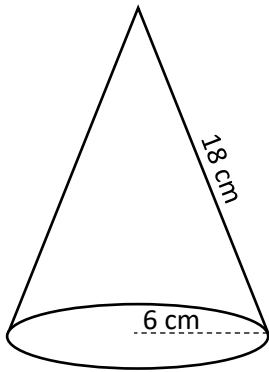
e) Sphere



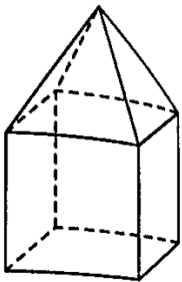
2. Calculate the volume of the following solid.



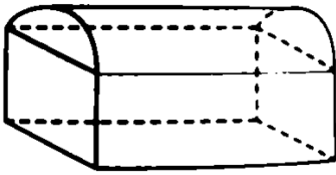
3. Calculate the volume of the following solid.



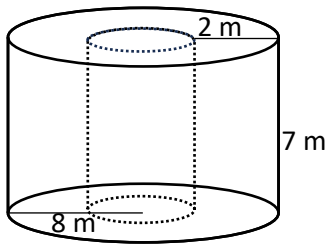
4. Calculate the volume of the solid composed by a pyramid with a 4 cm height stacked on top of a cube with 5 cm edges.



5. James built a treasure chest formed by a prism with a half-cylinder top. The cylinder's diameter is 10 cm and its height is 24 cm. The height of the prism is 14 cm. Determine the volume of James' treasure chest.



6. The solid below is composed of a large cylinder with a smaller cylindrical hole cut out of the center. The larger cylinder has a radius of 8 m. The height of the solid is 7 m. The distance between the outer and inner edge of the solid is 2 m. Determine the volume of the solid.



7. A regular hexagon has an area of 166.3 cm^2 and side lengths of 8 cm. Determine the length of the apothem.

8. The area of a circle is $36\pi \text{ mm}^2$. Determine the length of the diameter.

9. A square-based prism has base lengths of 8 cm and a volume of 640 cm^3 . What is the height of the prism?

10. A sphere has a volume of 1982 mm^3 . What is the length of the radius of the sphere?

11. The volume of a square pyramid is 1525 cm^3 . The base has side lengths of 10 cm. Determine the lateral area of the pyramid.

12. Complete the following conversions.

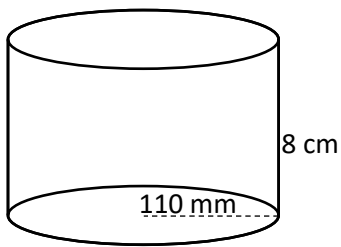
a. $3.4 \text{ m}^3 =$ mm^3

b. $1200 \text{ cm}^2 =$ hm^2

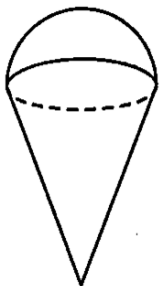
c. $0.8 \text{ km} =$ dam

d. $0.04 \text{ L} =$ daL

13. Determine the volume of the solid below.



14. Jackson wants to build an ice cream cone statue, created by a hemisphere on top of a cone, as shown below. The volume of the hemisphere is 1275 cm^3 . The height of the cone is 3 dm. The cost to build the cone depends on the total volume of the cone. It will cost \$76 per L to construct the cone. How much will it cost Jackson?



ANSWER KEY

1. a. $V = 72 \text{ cm}^3$
c. $V = 6333.45 \text{ m}^3$
e. $V = 38.79 \text{ hm}^3$
2. $V = 1.8984 \text{ m}^3$
3. $V = 639.75 \text{ cm}^3$
4. $V = 158.33 \text{ cm}^3$
5. $V = 4302.48 \text{ cm}^3$
6. $V = 615.75 \text{ m}^3$
7. $a = 6.93 \text{ cm}$
8. $d = 12 \text{ mm}$
9. $h = 10 \text{ cm}$
10. $r = 7.79 \text{ mm}$
11. $Lateral Area = 920.4 \text{ cm}^2$
12. a. $3,400,000,000 \text{ mm}^3$
c. 80 dam
- b. 0.000012 hm^2
d. 0.004 daL
13. $V = 3,041,061.69 \text{ mm}^3$ or $V = 3041.06 \text{ cm}^3$
14. $\$268.28$