

Volume Mixed Questions

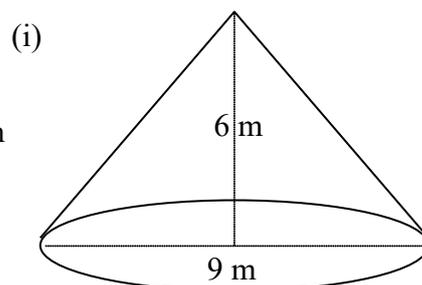
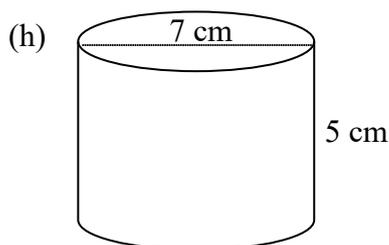
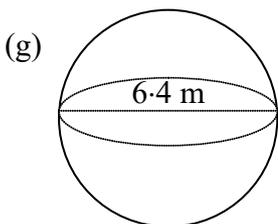
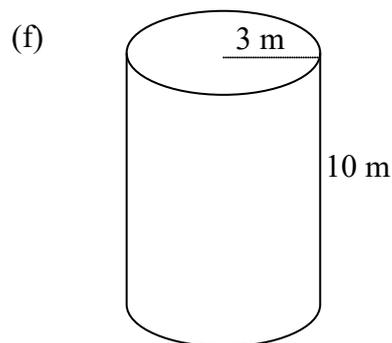
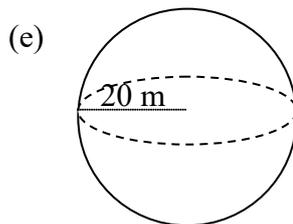
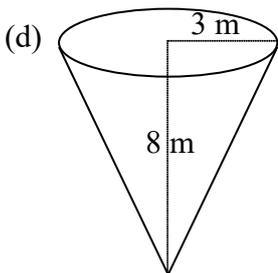
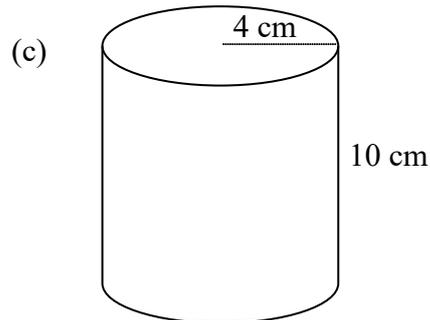
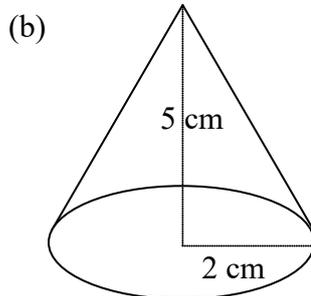
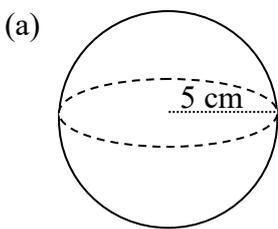
Volume of a sphere: $V = \frac{4}{3}\pi r^3$

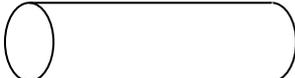
Volume of a cone: $V = \frac{1}{3}\pi r^2 h$

Volume of a cylinder: $V = \pi r^2 h$

1. (a) Calculate the volume of a **sphere** with radius 9 cm.
- (b) Calculate the volume of a **cone** with radius 7.2 cm and height 9.3 cm.
- (c) Calculate the volume of a **cylinder** with radius 8 cm and height 19 cm.
- (d) Calculate the volume of a **sphere** with radius 5.2 m.
- (e) Calculate the volume of a **cone** with radius 3 m and height 2.8 m.
- (f) Calculate the volume of a **cylinder** with radius 4.5 cm and height 6.4 cm.
- (g) Calculate the volume of a **sphere** with diameter 13 cm.
- (h) Calculate the volume of a **cone** with diameter 44 cm and height 8 cm.
- (i) Calculate the volume of a **cylinder** with diameter 4.6 m and height 2.1 m.

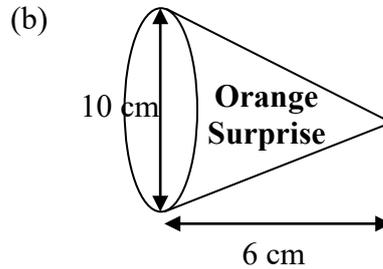
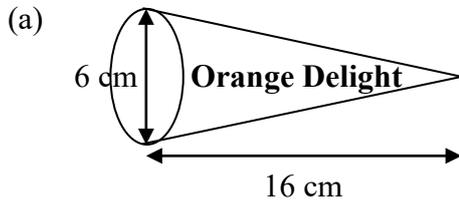
2. Calculate the volume of each shape.



3. A bauble for a Christmas tree is a sphere with radius 2.8 cm.
Calculate the volume of the bauble.
4. The nose of a spaceship is basically a cone of radius 2.8 m and height 2.5 m.
Calculate the volume of air in the nose cone.
5. The fuel tank of a spacecraft is a cylinder of radius 2.6 m and length (height) 3.5 m.
Calculate the volume of the tank.
6. A spherical golf ball has a diameter of 4.2 cm.
Calculate the volume of the ball.
7. A paper cone is filled with ice cream.
The cone has a diameter of 6 cm and is 10 cm long.
Calculate the volume of ice cream in the cone.
8. A cylindrical oil drum has radius 32 cm and height 72 cm.
Calculate the volume of the drum.
9. A spherical globe has a diameter of 30 cm.
Calculate its volume.
10. An aqualung is a cylinder of length 70 cm and radius 6 cm.
Calculate its volume. 
11. A conical firework has a base radius of 2.5 cm and a height of 8.5 cm.
Calculate its volume.
12. A CD is a cylinder which is 120 mm in diameter and 1 mm thick.
Calculate the volume of the CD (ignore the hole in the middle).
13. Cocktails are served in a conical glass.
The diameter of the mouth of the glass is 8 cm and the height of the glass is 6 cm.
Calculate the capacity (volume) of the glass.
14. To calculate the volume of a lighthouse, it is assumed that the lighthouse is a cone with base diameter 10 m and vertical height 80 m.
Calculate the volume of the lighthouse.
15. A butter churn is cylindrical in shape.
The radius of the churn is 25 cm and the depth of the churn is 30 cm.
Calculate the volume of the churn.
16. A Christmas decoration is in the shape of a sphere with radius 4 cm.
Calculate the volume of the decoration.
17. A drinks container is in the shape of a cylinder with radius 20 cm and height 50 cm.
Calculate the volume of the drinks container.
Give your answer in cubic centimetres correct to two significant figures.
18. A mug is in the shape of a cylinder with diameter 10 cm and height 14 cm.
Calculate the volume of the mug.
19. A spherical marble has a diameter of 1.9 cm.
Calculate the volume of 60 of these marbles.

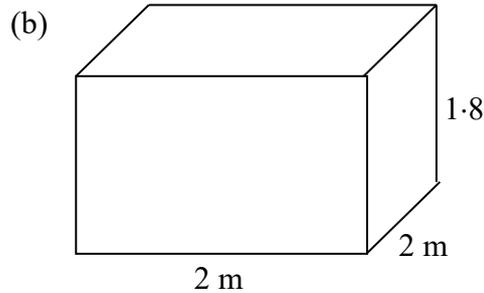
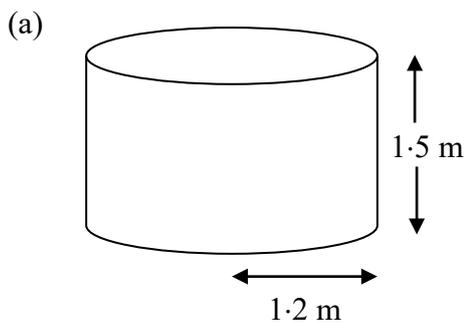
20. A cylindrical can has height 11 cm.
The radius of the base of the can is 4 cm.
Calculate the volume of the can.

21. Two different companies make cone-shaped ice lollies for the same price.

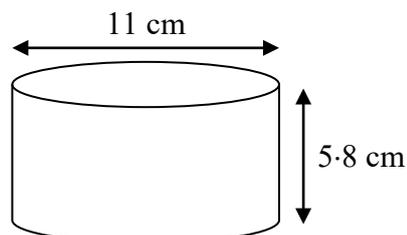
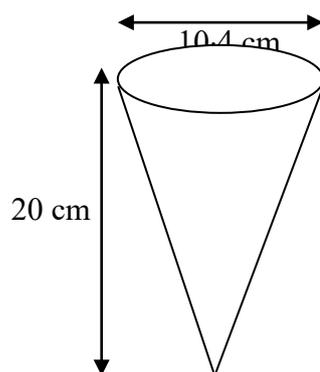


Which ice lolly is the better value?
Show all working.

22. A house needs an oil tank to hold the supply of oil for the central heating.
Which of the two oil tanks shown below would hold more oil?



23. Perfecto Ice Cream is sold in cones and cylindrical tubs with measurements as shown below.



Both the cone and the tub of ice cream cost the same.
Which container of ice cream is better value for money?
Give a reason for your answer.

Answers

1. (a) 3054 cm^3 (b) 505 cm^3 (c) 3820 cm^3 (d) 589 m^3
(e) 26.4 m^3 (f) 407 cm^3 (g) 1150 cm^3 (h) 4055 cm^3
(i) 34.9 m^3

2. (a) 524 cm^3 (b) 20.9 cm^3 (c) 503 cm^3 (d) 75.4 m^3
(e) $33\,510 \text{ m}^3$ (f) 283 m^3 (g) 137 m^3 (h) 192 cm^3
(i) 127 m^3

3. 92 cm^3 4. 20.5 m^3 5. 74.3 m^3

6. 38.8 cm^3 7. 94.2 cm^3 8. $57\,906 \text{ cm}^3$

9. $14\,137 \text{ cm}^3$ 10. 7917 cm^3 11. 55.6 cm^3

12. $11\,310 \text{ mm}^3$ 13. 101 cm^3 14. 2094 m^3

15. $58\,905 \text{ cm}^3$ 16. 268 cm^3

17. $63\,000 \text{ cm}^3$ (to two significant figures)

18. 1100 cm^3

19. $3.6 \times 60 = 216 \text{ cm}^3$

20. 553 cm^3

21. Volume of ice lolly (a) = 151 cm^3 ;
Volume of ice lolly (b) = 157 cm^3 ;
Ice lolly (b) is the better value.

22. Volume of tank (a) = 6.79 m^3 ;
Volume of tank (b) = 7.2 m^3 ;
Tank (b) would hold more oil.

23. Volume of cone = 566 cm^3 ;
Volume of tub = 551 cm^3 ;
The cone is better value for money.