Volumes - Lesson 6

Volume of a Cone - Calculator

LI

- Calculate the Volume of a Cone.

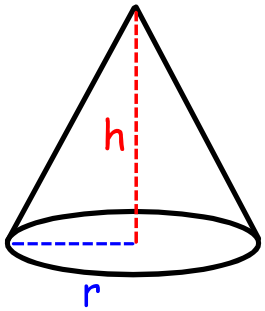
SC

- Cone formula.

Jan 10-12:11

Volume of a Cone

$$V = \frac{1}{3} \pi r^2 h$$



(r is radius of circle, h is height)

Remember, r^2 means r x r

$$V = \pi \times r \times r \times h \div 3$$

Example 1

Calculate the volume of a cone of radius 4 cm and height 6 cm (2 decimal places).

$$V = \pi \times r \times r \times h \div 3$$

$$V = \pi \times 4 \times 4 \times 6 \div 3$$

$$\boxed{V = 100.53 \text{ cm}^3}$$

Aug 23-10:15

Example 2

Calculate the volume of a cone of diameter 14 cm and height 3 cm (2 decimal places).

radius = 7 cm

$$V = \pi \times r \times r \times h \div 3$$

$$V = \pi \times 7 \times 7 \times 3 \div 3$$

$$V = 153.94 \text{ cm}^3$$

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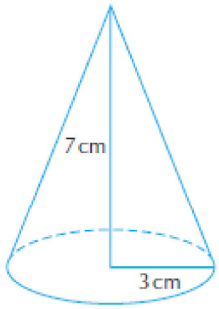
Calculate the volumes of these cones (2 decimal places) :

1) r = 8 cm, h = 4 cm	9) r = 8.5 cm, h = 4.7 cm
2) D = 16 cm, h = 10 cm	10) D = 9.9 cm, h = 8.5 cm
3) r = 19 cm, h = 11 cm	11) r = 0.5 cm, h = 2.5 cm
4) D = 21 cm, h = 13 cm	12) D = 20.1 cm, h = 1.5 cm
5) r = 38 cm, h = 56 cm	13) r = 1.1 cm, h = 2.2 cm
6) D = 67 cm, h = 67 cm	14) D = 11.1 m, h = 3.2 m
7) r = 50 cm, h = 100 cm	15) r = 1.01 mm, h = 1.1 mm
8) D = 200 cm, h = 101 cm	16) D = h = 200 mm

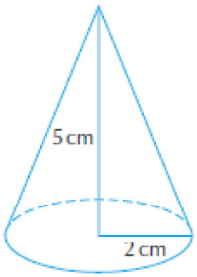
N5 Student Book pg. 81 Ex. 10C All Q

1 Calculate the volume of each of these cones.

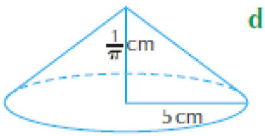
a



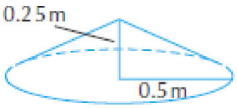
b



c



d



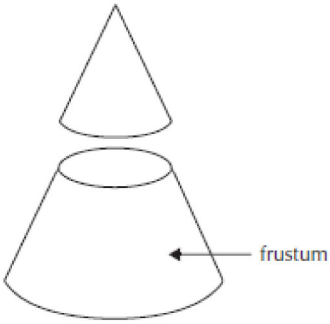
2 Calculate the height of a cone with volume 64 cm^3 and radius 3 cm. Write your answer correct to 3 significant figures.

3 This hat is in the shape of a cone. Calculate the diameter of the hat if it has volume 124 cm^3 and height 21 cm.

4 A frustum is a cone with the top sliced off.

A frustum is created from a cone with height 12 cm and base diameter 8 cm by making a horizontal cut 3 cm from the apex of the cone.

Calculate the volume of the frustum if the diameter of the top of the frustum is 3 cm.



5 The point at the tip of a javelin is formed by sharpening a cylinder of metal to produce a perfect cone at the end with no overall loss in length. If the diameter of the javelin is 3 cm, and the conical tip is of height 18 cm, calculate the volume of metal removed when creating the tip.

Answers

1) 268 . 08 cm^3	9) 355 . 60 cm^3
2) 670 . 21 cm^3	10) 218 . 10 cm^3
3) 4 158 . 42 cm^3	11) 0 . 65 cm^3
4) 1 500 . 90 cm^3	12) 158 . 65 cm^3
5) 84 680 . 58 cm^3	13) 2 . 79 cm^3
6) 78 739 . 57 cm^3	14) 103 . 22 m^3
7) 261 799 . 39 cm^3	15) 1 . 18 mm^3
8) 1 057 669 . 53 cm^3	16) 2 094 395 . 10 mm^3

Exercise 10C

1 a $V = 66.0\,cm^3$

b $V = 20.9\,cm^3$

c $V = 8.3\,cm^3$

d $V = 0.1\,m^3$

2 $h = 6.79\,cm$

3 $d = 4.7\,cm$

4 $V = 194.0\,cm^3$

5 $V = 84.8\,cm^3$