Maths Program

Volume worksheet

Rectangular prism

To find the volume of a rectangular prism, multiply its 3 dimensions: length x width x height. The volume is expressed in cubic units.

Formula:

V = l x w x h l: length w: width h: height = Volume

Rectangular building - Question 1

Calculate the volume of a rectangular prism power station.

The structure is 9 metres in height, 34 metres in width and 12 metres in depth.

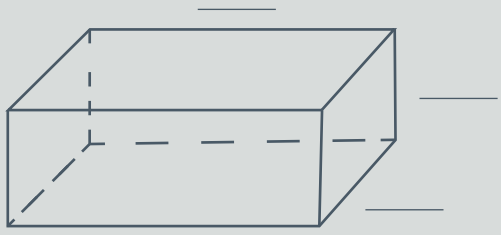
Step 1

Write the equation using the above numbers

_____

Step 2

Write the numbers in the correct space provided in the diagram



Step 3
Show your working

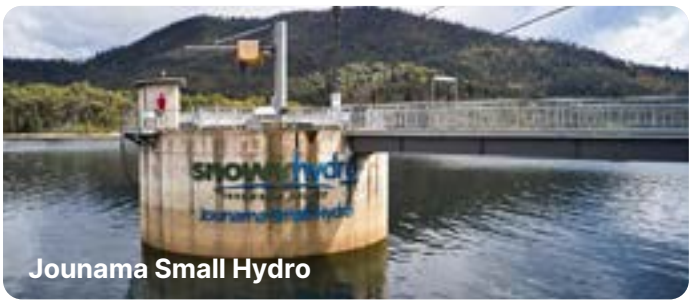
Answer (don't forget your units!) Volume =

Cylinder

To find the volume of a cylinder multiply using the formula π x radius^2 x height.

Formula:

$V = \pi r^2 h$ r: radius of the circular base h: height



Cylindrical building - Question 2

How much concrete will it take to build the Jounama power station if it has a Diameter of 13.8m a Height of 31m and a wall thickness of 0.5m?

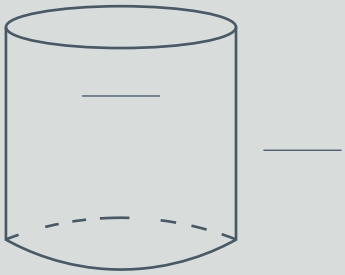
Step 1

Write the equation using the above numbers

_____

Step 2

Draw lines to show where the Height and Radius are on the diagram and fill in the numbers



Step 3
Show your working

Answer (don't forget your units!) Volume =

Pipes and tunnels - Question 3

What is the volume of a penstock (cylinder) that is 2km in length and 3m in diameter?

Show your working

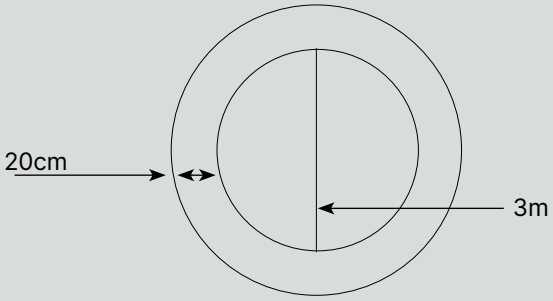
Tumut 3 Power Station

Question 4

If the diameter was including the thickness of the concrete walls at 20cm.

What will the volume be?

Show your working



Pyramid

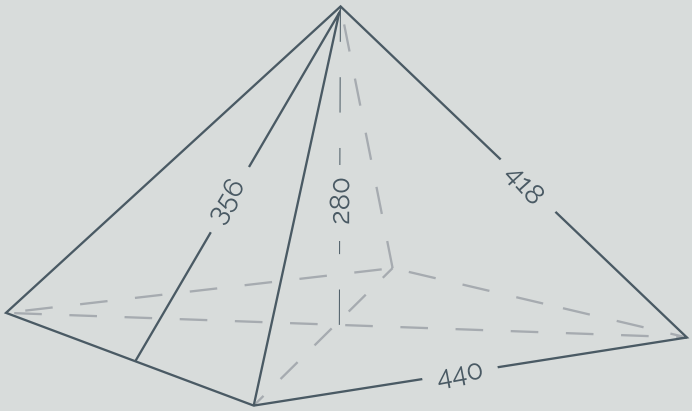
Formula - V = (⅓) x b x h

b: area of base h: height of the pyramid

Pyramids and Cones - Question 4

What is the volume of a Pyramid that is 280 royal cubits high with a base length of 440 cubits?

These are the dimensions of the Pyramid of Giza.



Show your guided working

Answer (don't forget your units!) Volume =

Cones

Formula:

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

r: radius h: height

Cone funnel

A funnel is used to pull water into the intake structure of the dam as seen in this photo.

Question 6

Bonus challenge

It is 6m wide and extends 10m down. It is a cone shape, calculate its volume. The cone funnel does not meet at a point but has the end cut off. If 2 metres from the bottom it ends and the diameter of that outlet is 1.2m what is the volume of the funnel?

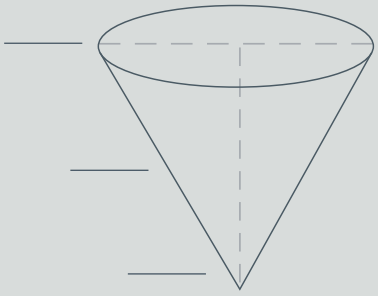
Step 1

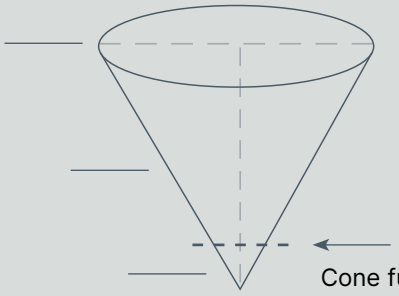
Write your equation using the numbers above

_____

Step 2

Write the numbers in the correct space provided in the diagram





Step 3
Show your working

Answer (don't forget your units!): Volume =

Volume Guessing - Hands-on activity

Volume and measurement are extremely important in our world. Follow the method below to see how close you can guess the right volume. It's harder than you think!

Materials

1 x cup or container that could hold water

1 x ruler

1 x measuring instrument (volumetric cylinder, measuring jug etc)

Method

1. Use your knowledge of calculating volume to estimate the volume of your container.
2. Measure out the volume of your container using water with your measuring instrument.
3. Check how close you were

Show your working here