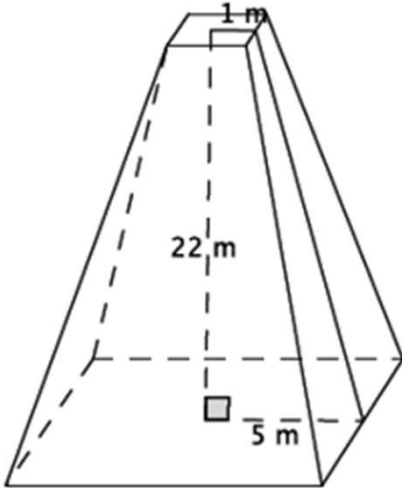


Volume of Truncated Cone

1. Find the volume of the truncated pyramid with a square base

a) Write a proportion that will allow you to determine the height of the cone that has been removed. Explain what all parts of the proportion represent.



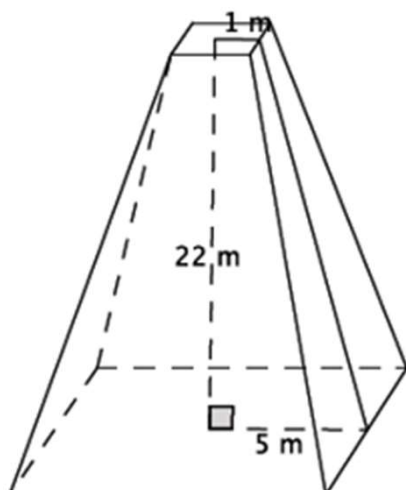
b) Solve your proportion to determine the height of the pyramid that has been removed.

c) Calculate the volume of the truncated pyramid.

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a) Write a proportion that will allow you to determine the height of the cone that has been removed. Explain what all parts of the proportion represent.



$$\frac{1}{5} = \frac{x}{x + 22}$$

Let x m represent the height of the small pyramid. Then $x + 22$ is the height of the large pyramid. The 1 represents half of the length of the base of the small pyramid, and the 5 represents half of the length of the base of the large pyramid.

b) Solve your proportion to determine the height of the pyramid that has been removed.

$$\begin{aligned}x + 22 &= 5x \\22 &= 4x \\5.5 &= x\end{aligned}$$

c) Calculate the volume of the truncated pyramid.

The volume of the small pyramid is

$$\begin{aligned}V &= \frac{1}{3}(4)(5.5) \\&= \frac{22}{3}.\end{aligned}$$

The volume of the large pyramid is

$$\begin{aligned}V &= \frac{1}{3}(100)(27.5) \\&= \frac{2750}{3}.\end{aligned}$$

The volume of the truncated pyramid is

$$\frac{2750}{3} - \frac{22}{3} = \frac{2728}{3}.$$

The volume of the truncated pyramid is $\frac{2728}{3} \text{ m}^3$.

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