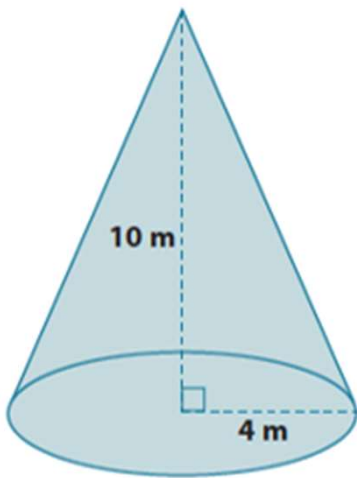
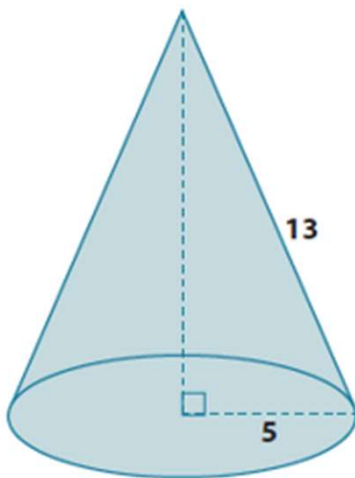


Pythagorean Theorem in 3D Solids

1. What is the lateral length (slant height) of the cone shown below? Give an exact answer using a square root.



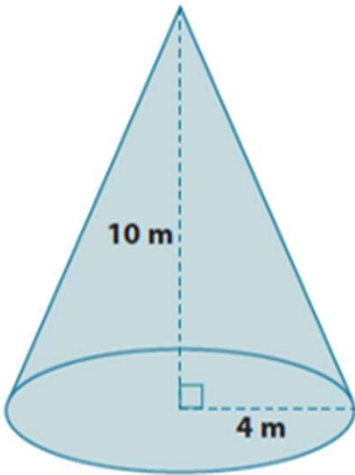
2. What is the volume of the cone shown below? Give an exact answer.



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Pythagorean Theorem in 3D Solids

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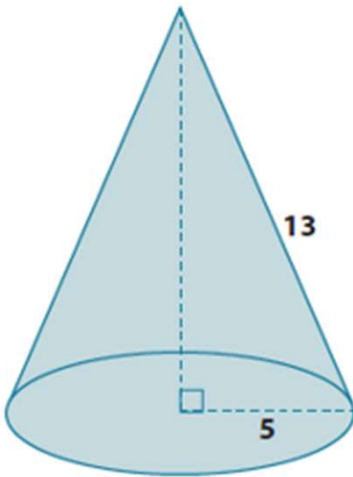


Let c m be the lateral length.

$$\begin{aligned}10^2 + 4^2 &= c^2 \\100 + 16 &= c^2 \\116 &= c^2 \\\sqrt{116} &= \sqrt{c^2} \\\sqrt{116} &= c\end{aligned}$$

The lateral length of the cone is $\sqrt{116}$

2. What is the volume of the cone shown below? Give an exact answer.



Let h represent the height of a cone.

$$\begin{aligned}5^2 + h^2 &= 13^2 \\25 + h^2 &= 169 \\h^2 &= 144 \\\sqrt{h^2} &= \sqrt{144} \\h &= 12\end{aligned}$$

The height of the cone is 12 units.

$$V = \frac{1}{3}\pi(25)(12) = 100\pi$$

The volume of the cone is 100π units³.

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