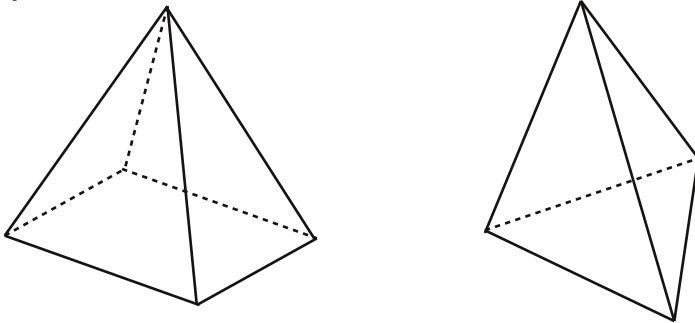


Volume of Pyramids and Cones

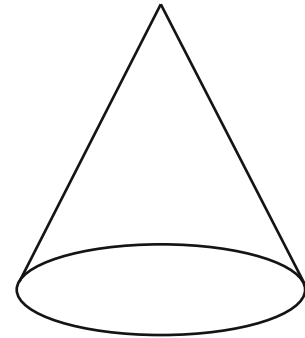
Anyone for a trip to Egypt for an ice cream cone? No? So it's just me then...

Pyramids and cones are pretty much like prisms and cylinders except instead of having a polygon or circle on the top AND the bottom, they just have one on the bottom and then meet in a point on the top, like these....

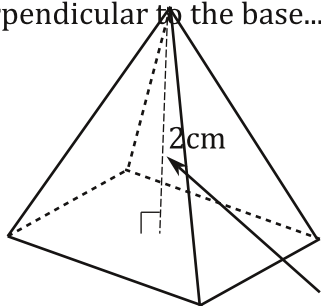
Pyramids



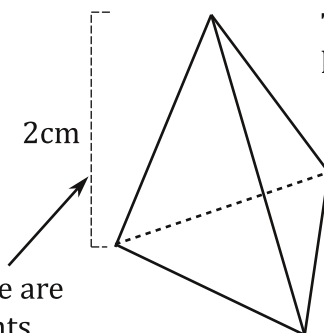
Cone



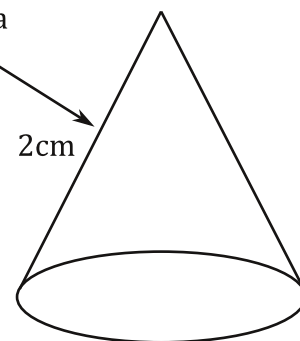
To find the volume of a pyramid the formula is $V=1/3(Bh)$, and for a cone it's $V=1/3\pi r^2$. Why? Well there are several really fun exercises you can do to show why, but they require folding and cutting paper or pouring water and sand into things and would be a bit hard to explain. Basically, you can fit 3 cones or pyramids into a cylinder or prism of the same dimensions. For now, take my word for it.... One tricky thing with cones and pyramids is the height. The height is always perpendicular to the base...



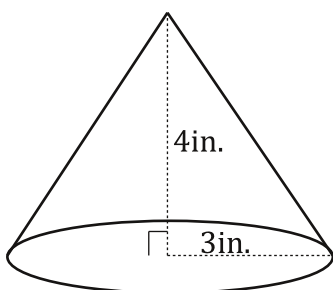
These are heights.



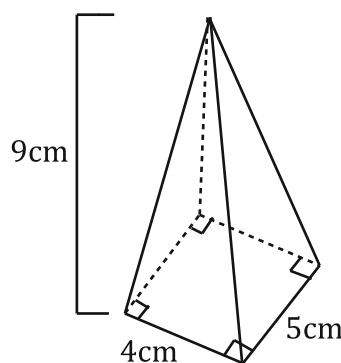
This is not a height!



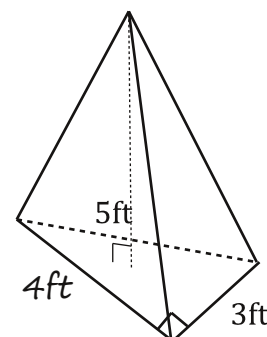
Find the volume.



$$\begin{aligned} V &= 1/3\pi r^2 h \\ V &= 1/3\pi(3^2)4 \\ V &= 1/3\pi 9*4 \\ V &= 1/3(36\pi) \\ V &= 12\pi \\ V &\approx 40.84\text{in}^3 \end{aligned}$$



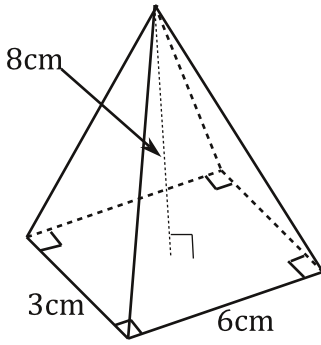
$$\begin{aligned} B &= bh \\ B &= 4*5 \\ B &= 20 \\ V &= 1/3(Bh) \\ V &= 1/3(20*9) \\ V &= 1/3(180) = 60\text{cm}^3 \end{aligned}$$



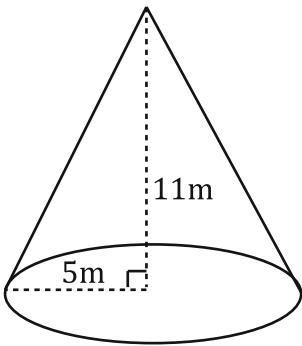
$$\begin{aligned} &3-4-5 \text{ right triangle scale} \\ &\text{factor } 1. 1*4=4 \\ B &= 1/2bh \\ B &= 1/2(3*4) \\ B &= 1/2(12) \\ B &= 6 \\ V &= 1/3(Bh) \\ V &= 1/3(6*5) \\ V &= 1/3(15) = 5\text{ft}^3 \end{aligned}$$

Calculate the volume of each figure...

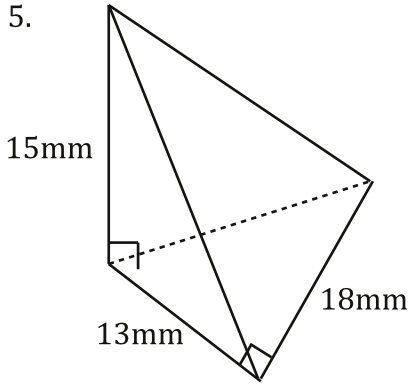
1.



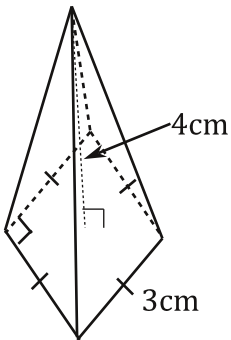
3.



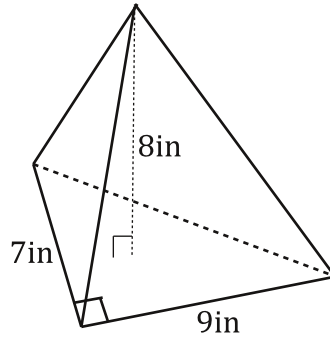
5.



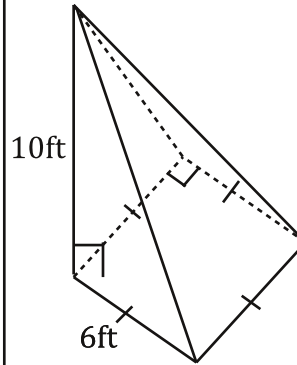
7.



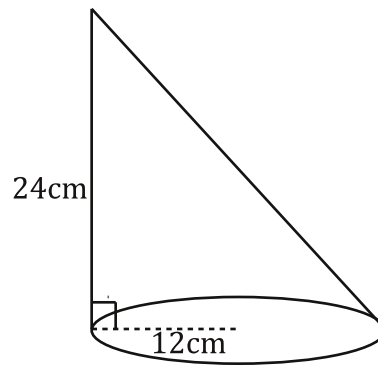
2.



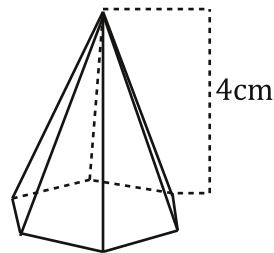
4.



6.



8. $B=35\text{cm}^2$

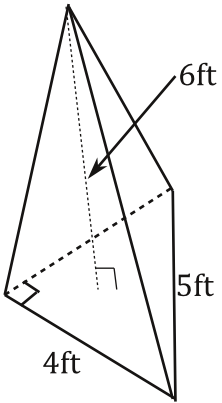


Bubble all the correct answers from above. Don't bubble incorrect answers.

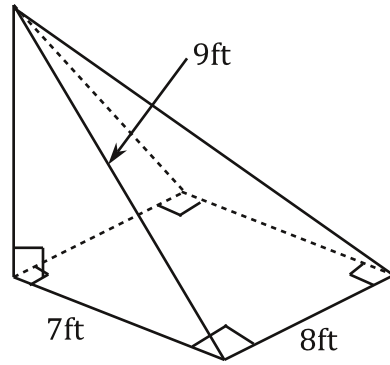
- 120
 2025
 224
 25.67
 297.33
 49
 84
 48
 287.99
 46.67
 12
 130
 585
 3619.11

Solve for any missing dimensions, then find the volume of each figure...

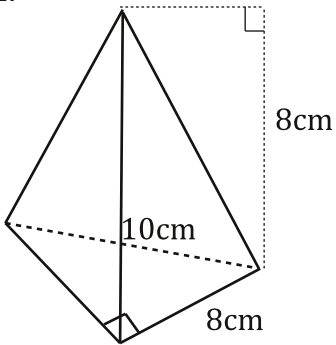
9.



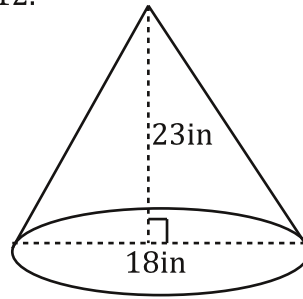
10.



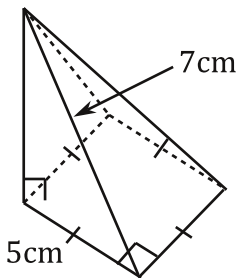
11.



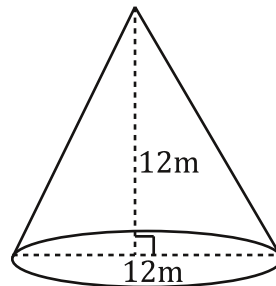
12.



13.



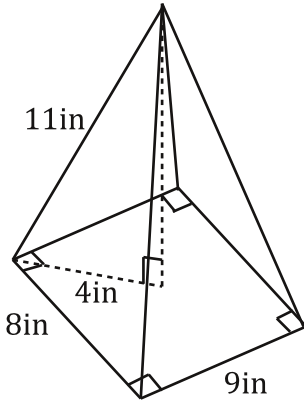
14.



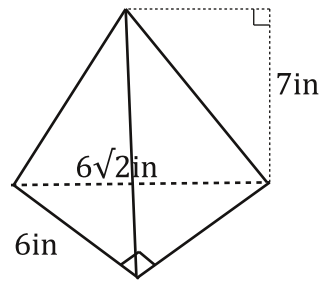
Bubble all the correct answers from above. Don't bubble incorrect answers.

- 64
 320
 12
 108.5
 452.39
 4.9
 40.83
 7803.72
 168
 1950.93

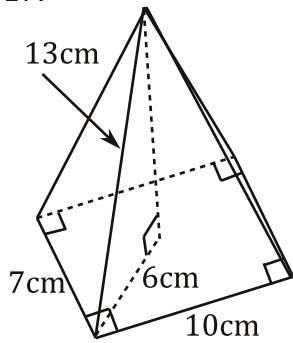
15.



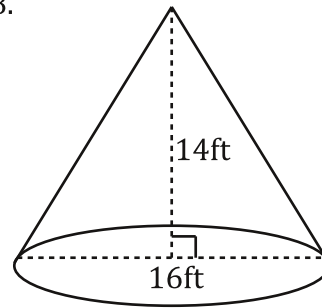
16.



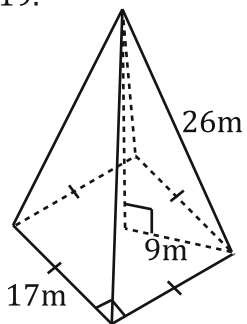
17.



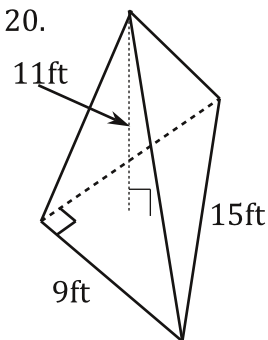
18.



19.



20.

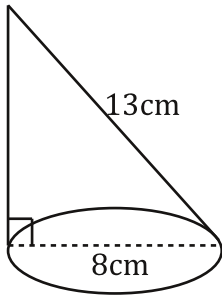


Bubble all the correct answers from above. Don't bubble incorrect answers.

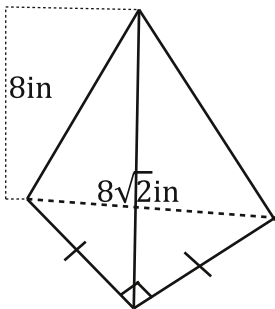
- 198
 246
 269.3
 2504.67
 247.5
 3753.16
 59.39
 2814.87
 2349.57
 42

Write the name of each figure, the correct formula, and find the volume of each.

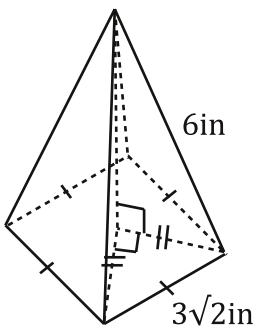
21.



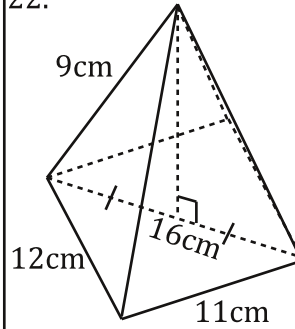
23.



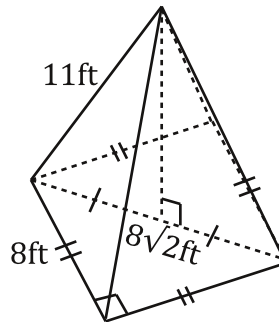
25.



22.

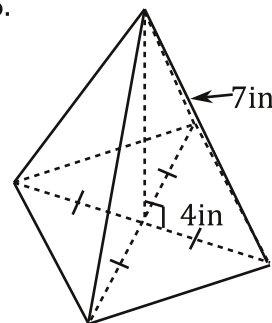


24.



Divide the diagonal of the base by two to get a leg of the triangle inside.

26.

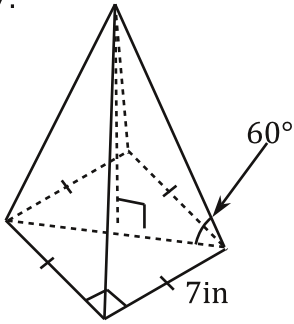


Bubble all the correct answers from above. Don't bubble incorrect answers.

- 74.67
 85.33
 61.23
 63.12
 201.17
 181.28
 234.58
 674.87
 31.2
 396

Write the name of each figure, the correct formula, and find the volume of each.

27.

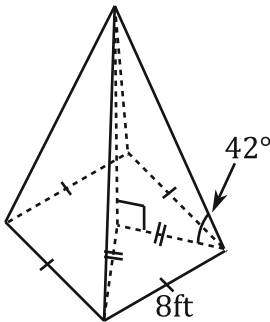


Third, use trig or special rt. triangles to find the height.

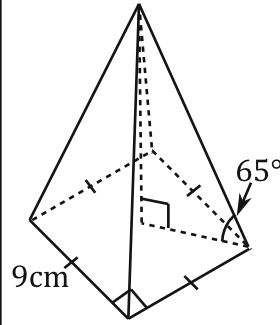
First, find the length of the diagonal of the base. Last, find the volume.

Second, divide it by 2 to find the side of the right triangle inside.

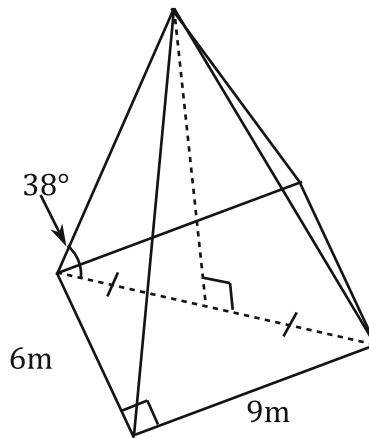
29.



28. Follow the steps from 27...



30.



Bubble all the correct answers from above. Don't bubble incorrect answers.

- 103.5
 78.96
 33.7
 368.28
 105.68
 31.2
 108.8
 76.53
 123.59
 109.6

Answer each question...

31. Find the volume of a rectangular based pyramid with a width of 9ft, a length of 11ft, and a height of 8ft.

33. Find the volume of pyramid with a triangular base. The triangle has a base of 5cm and a height of 14cm. The height of the pyramid is 15cm.

35. Find the volume of a pyramid with a right triangular base. The triangle has a hypotenuse of 13cm and a leg of 5cm. The height of the pyramid is 11cm.

32. Find the volume of a cone with a height of 13ft and a radius of 5ft.

34. Find the volume of a square based pyramid with a side length of 7in for the square, and a height of 2in.

36. Find the volume of a cone with a height of 9in and a diameter of 12in.

Bubble all the correct answers from above. Don't bubble incorrect answers.

238.33 350 32.67 128.33 1021.02 1357.17 340.34 175 125 264