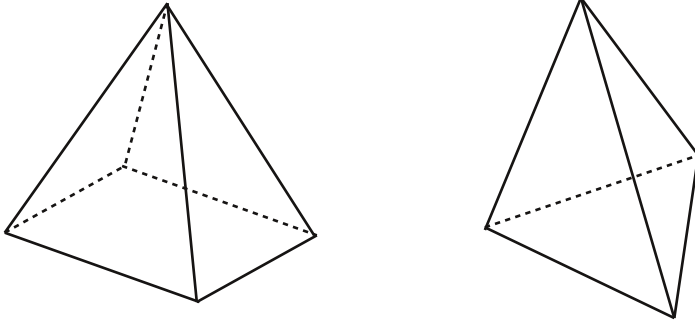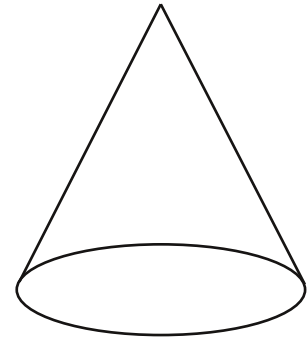# Volume of Pyramids and Cones

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....
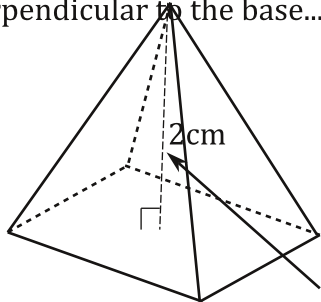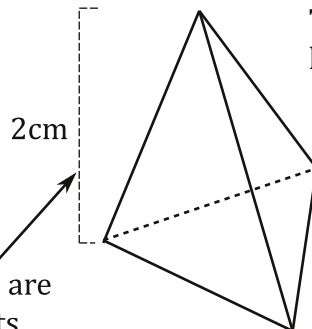
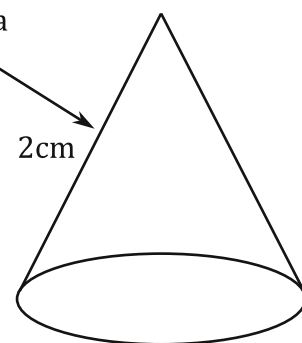Pyramids   Cone

To find the volume of a pyramid the formula is V=1/3(Bh), and for a cone it's V=1/3πr². 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...
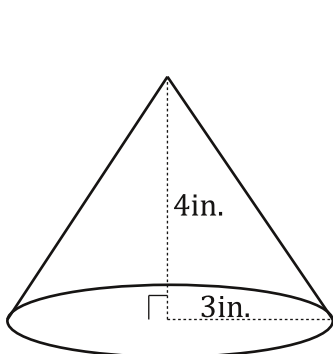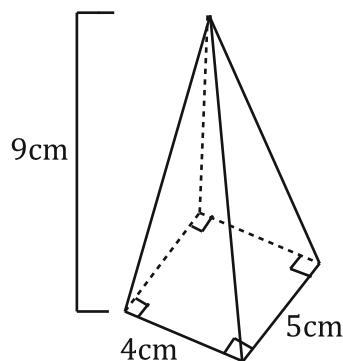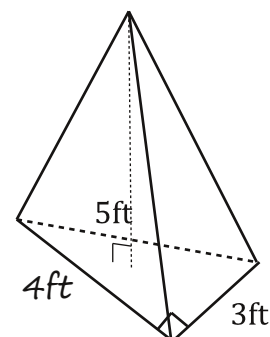
2cm

2cm

This is not a height!

2cm

These are heights.

Find the volume.

4in.

3in.

9cm

4cm   5cm

5ft

4ft   3ft

V=1/3πr2h
V=1/3π(3²)4
V=1/3π9*4
V=1/3(36π)
V=13π
V≈40.84in³

B=bh
B=4*5
B=20
V=1/3(Bh)
V=1/3(20*9)
V=1/3(180)=60cm²

3-4-5 right
triangle scale
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)=5ft³

Calculate the volume of each figure...

1.

8cm
3cm
6cm

2.

8in
7in
9in

3.

11m
5m

4.

10ft
6ft

5.

15mm
13mm
18mm

6.

24cm
12cm

7.

4cm
3cm

8. B=35cm^2

4cm
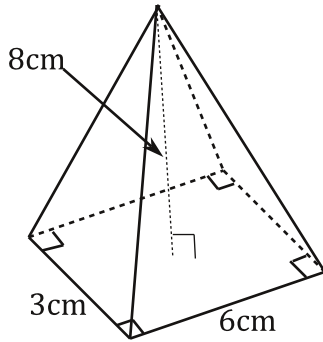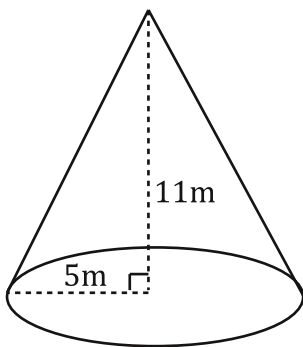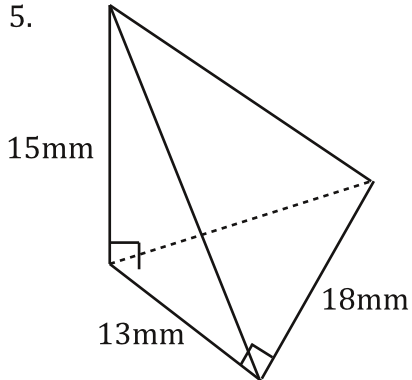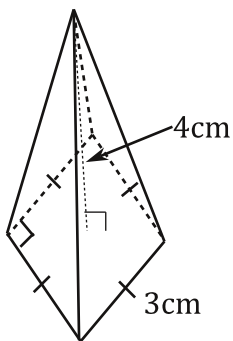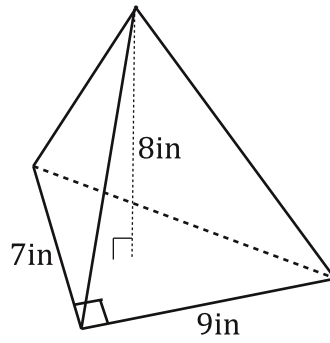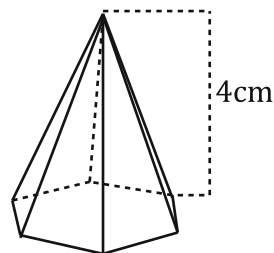
Bubble all the correct answers from above. Don't bubble incorrect answers.

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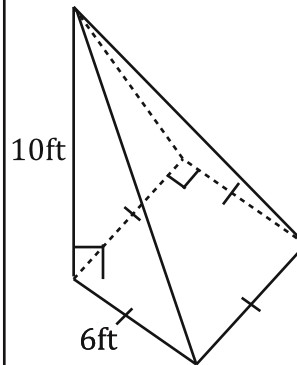120   2025   224   25.67   297.33   49   84   48   287.99   46.67   12   130   585   3619.11

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

9.

6ft
5ft
4ft

10.

9ft
7ft
8ft

11.

8cm
10cm
8cm

12.

23in
18in

13.

7cm
5cm

14.

12m
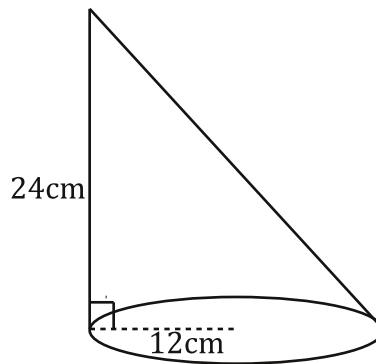12m
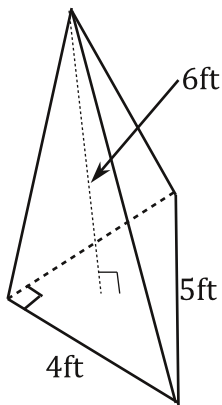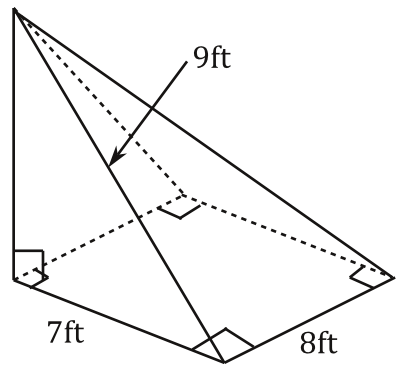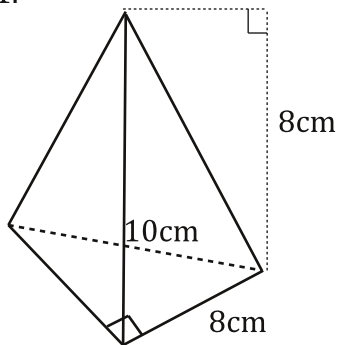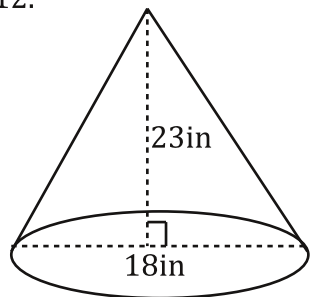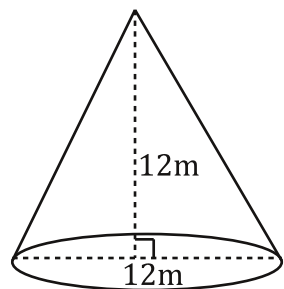
Bubble all the correct answers from above. Don't bubble incorrect answers.

○   ○   ○   ○   ○   ○   ○   ○   ○   ○
64   320   12   108.5   452.39   4.9   40.83   7803.72   168   1950.93

15.
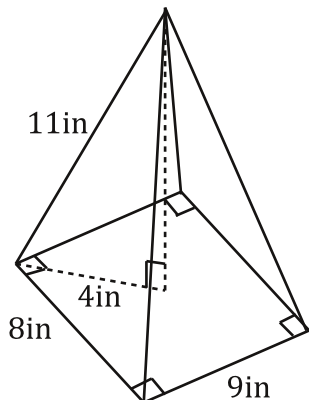
11in
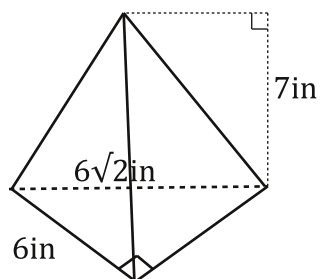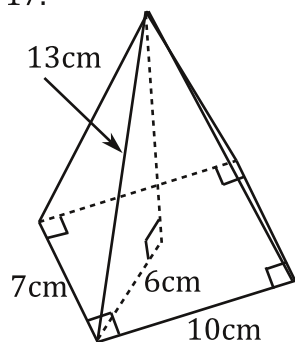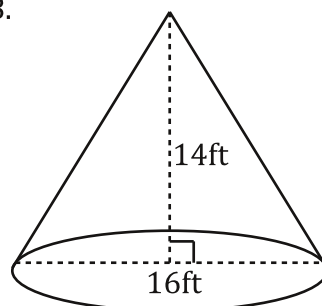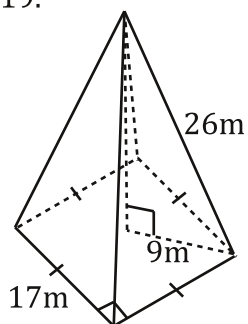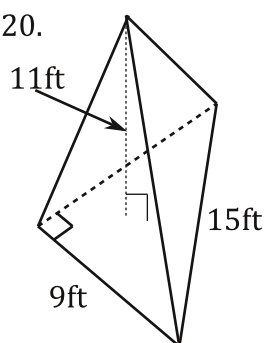
4in

8in

9in

16.

7in

6√2in

6in

17.

13cm

7cm
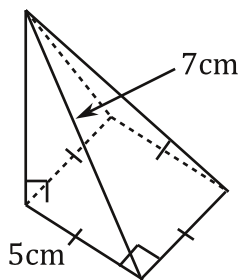
6cm

10cm

18.

14ft

16ft

19.

26m

9m

17m

20.

11ft

15ft

9ft

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.

13cm

8cm

22.

9cm

12cm

16cm

11cm

23.

8in

8√2in

24.

11ft

8ft

8√2ft

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

25.

6in

3√2in

26.

7in

4in

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

© 2010   www.letspracticegeometry.com
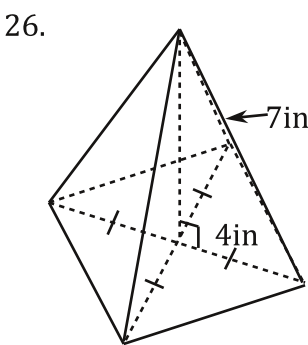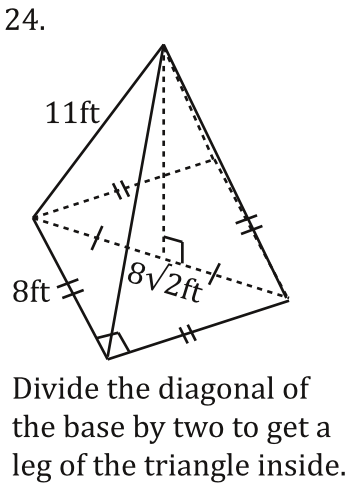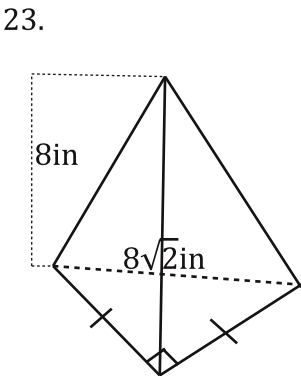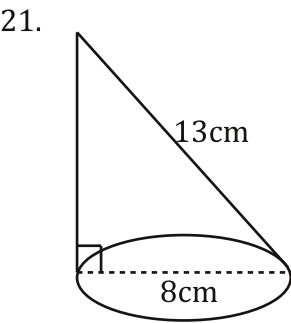
Write the name of each figure, the correct formula, and find the volume of each.

27.

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

60°

7in

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.
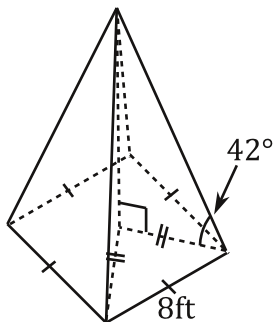
28. Follow the steps from 27...
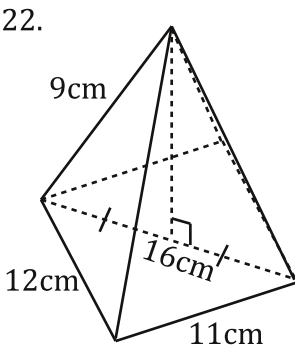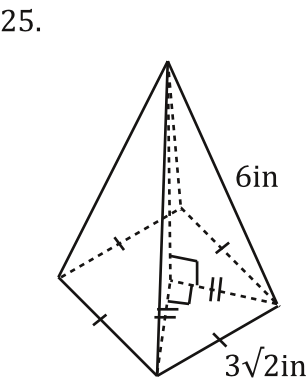

65°

9cm

29.

42°

8ft

30.

38°

6m

9m

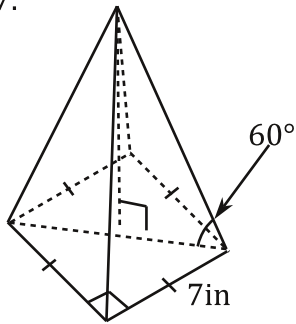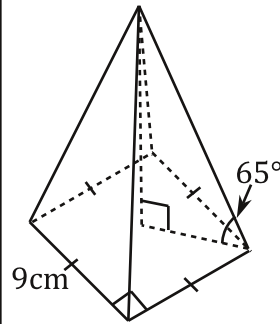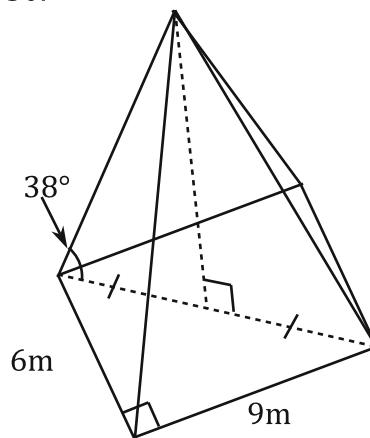Bubble all the correct answers from above. Don't bubble incorrect answers.

○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.

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

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.

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

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.

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