

(DN) ON BACK OF PACKET

Name _____ Per _____

LO: I can solve problems involving volumes of General Cones and General Cylinders.

□ (1)
calculator

What is a General Cone?

General cones are 3-dimensional shapes formed by a region in a plane and all segments from a single point (V) not on the plane to every point in the region (B).

SHADE region B in plane E pink.

SHADE point V pink.

General Cones have _____ base(s) and _____ vertex.

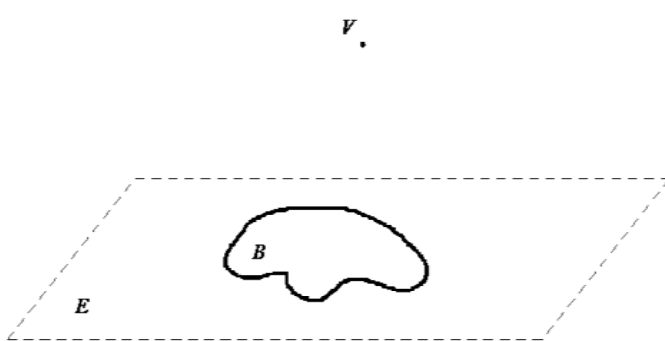


Figure 1

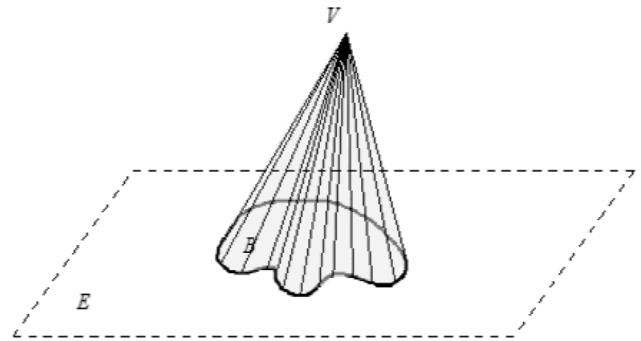
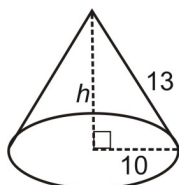


Figure 2

Go to the website <http://tube.geogebra.org/student/m685821> to see the proof of the formula for the volume of a cone.

$$V_{\text{cone}} = \frac{1}{3}BH$$

Find the volume of the cone below:

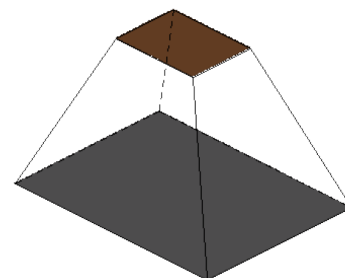


(2) **Using volume to solve problems**cont.
calculator

Suppose you fill a conical paper cup with a height of 6" with water. If all the water is then poured into a cylindrical cup with the same radius and same height as the conical paper cup, to what height will the water reach in the cylindrical cup?

 (3)cont.
calculator

The frustum of a pyramid is formed by cutting off the top part by a plane parallel to the base. The base of the pyramid and the cross-section where the cut is made are called the *bases of the frustum*. The distance between the planes containing the bases is called the *height of the frustum*. Find the volume of a frustum if the bases are squares of edge lengths 2 and 3, and the height of the frustum is 4.



(3)
calculator

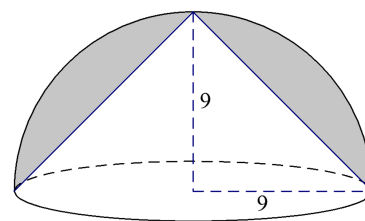
How can we use the volume of General Cones to answer real world problems?

A cone with a radius of 5 cm and height of 8 cm is to be printed from a 3D printer. The medium that the printer will use to print (i.e., the “ink” of this 3D printer) is a type of plastic that comes in coils of tubing which has a radius of $1\frac{1}{3}$ cm. What length of tubing is needed to complete the printing of this cone?

(3)
calculator

Cones and Spheres?

1. In a solid hemisphere, a cone is removed as shown. Calculate the volume of the resulting solid. In addition to your solution, provide an explanation of the strategy you used in your solution.



(8) **Exit Ticket**

calculator

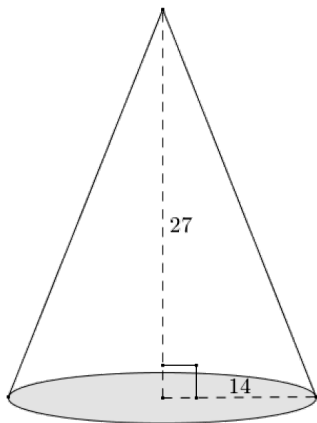
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 (9) **Homework**

calculator

Provide sufficient evidence for each response.

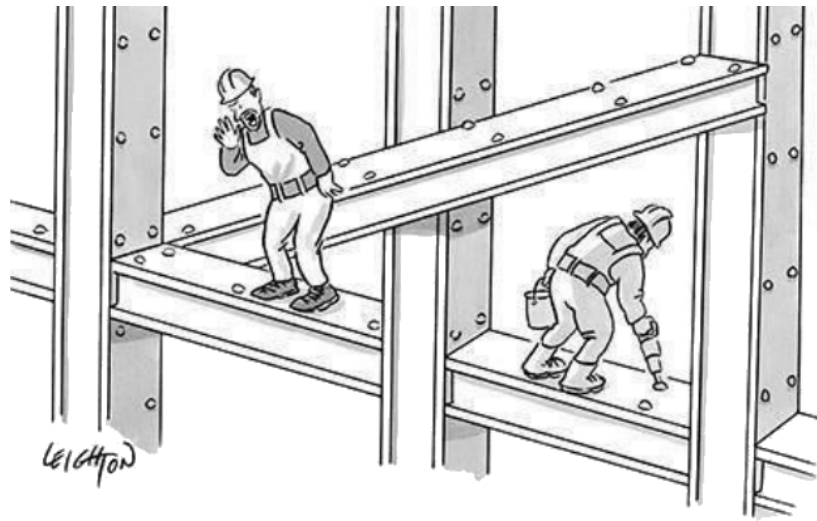
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- (1) Find the volume of the circular cone in the diagram.



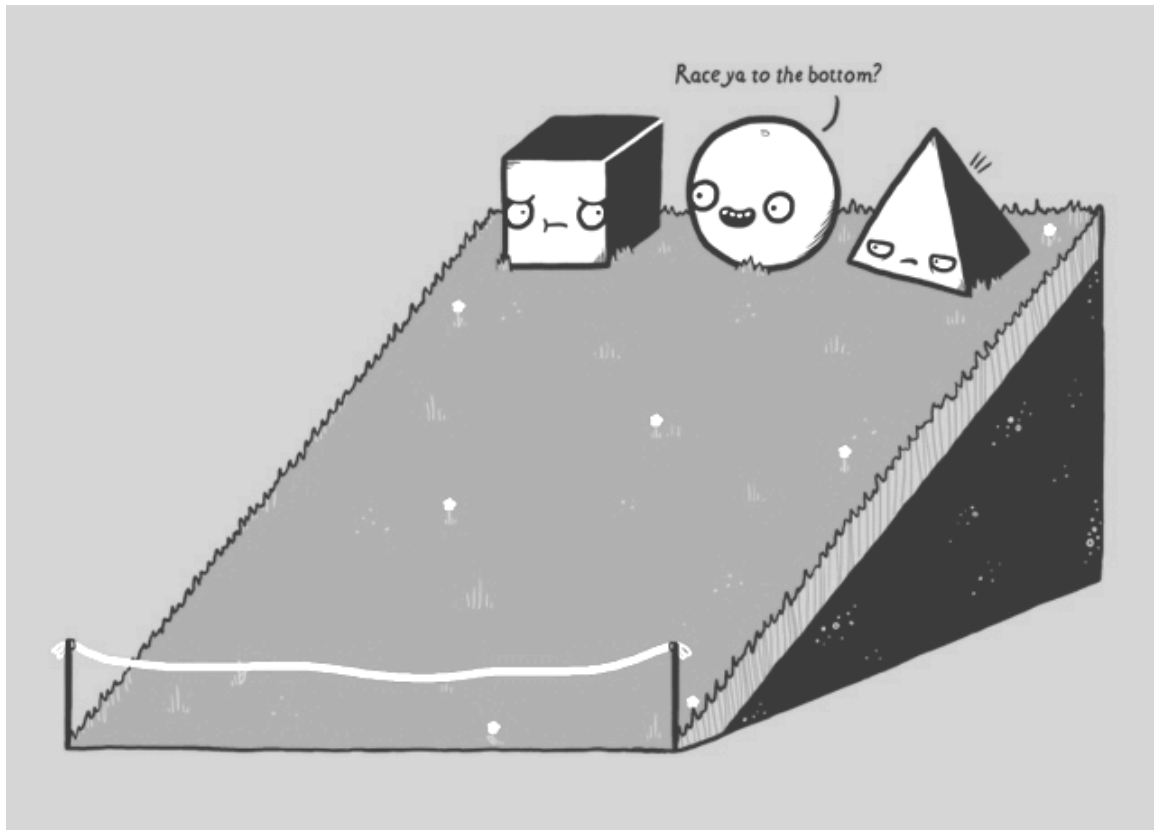
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- (2) A pyramid has volume 24 and height 6. Find the area of its base.

-
- (3)

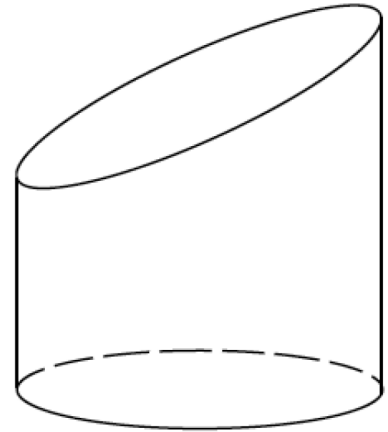
An ice cream cone is 11 cm deep and 5 cm across the opening of the cone. Two hemisphere-shaped scoops of ice cream, which also have diameters of 5 cm, are placed on top of the cone. If the ice cream were to melt into the cone, will it overflow?



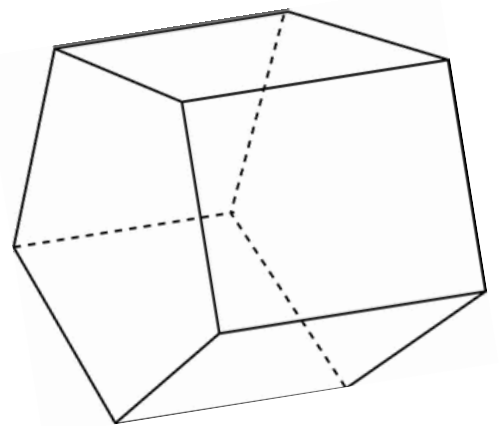
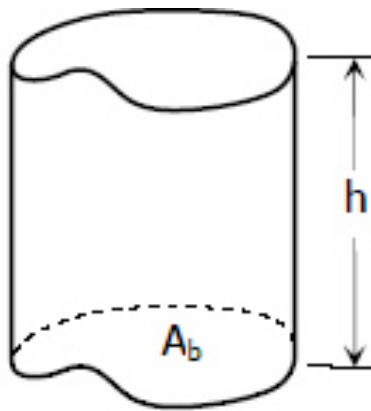
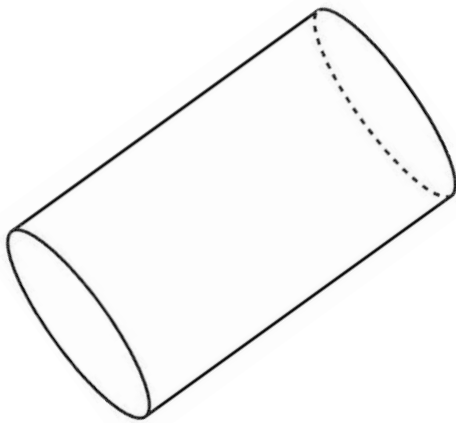
Escher, get up here!



1. Is this a cylinder? Explain why or why not.

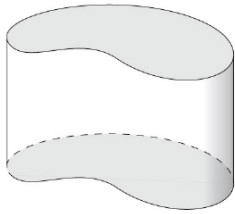


2. For each of the following figures, draw the shape of a cross section of the figure.

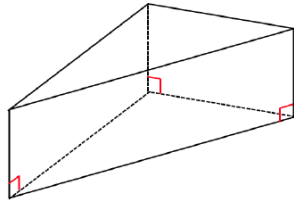


(1)

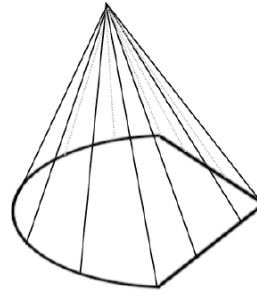
Group the following images by shared properties. What defines each of the groups you have made?



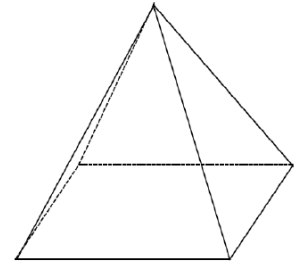
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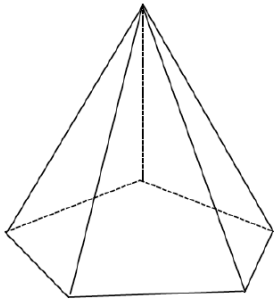
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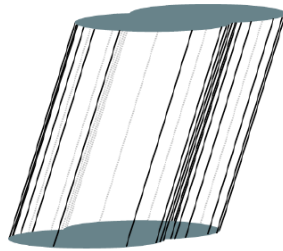
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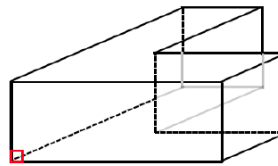
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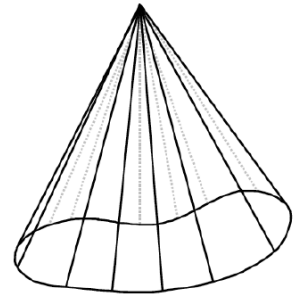
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