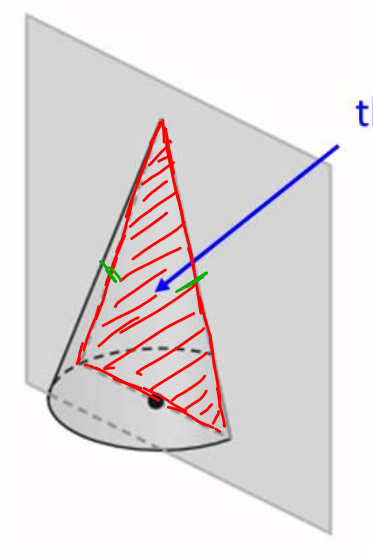
Objective: Describe cross sections and solids of rotation.

A **cross section** is a region of a plane that intersects a solid figure. Cross sections of three-dimensional figures sometimes turn out to be simple figures, such as triangles, rectangles, or circles.

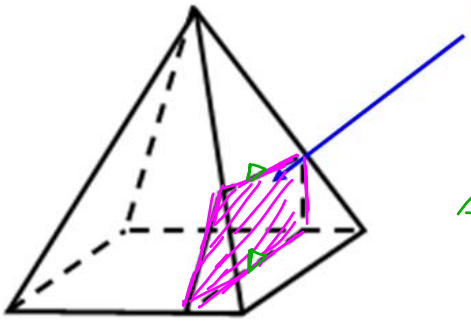
Ex) Describe the cross section of each figure.

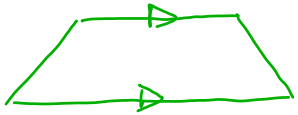


cross section = isosceles triangle

Objective: Describe cross sections and solids of rotation.

Ex) Describe the cross section of each figure.





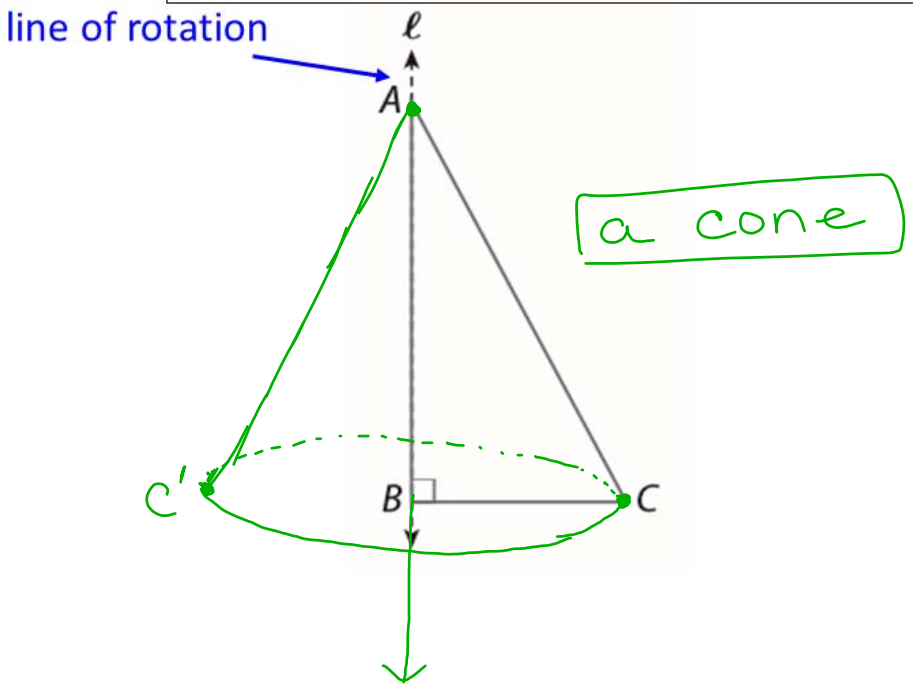
cross section = a trapezoid

Objective: Describe cross sections and solids of rotation.

A three-dimensional figure can be created by rotating a two-dimensional figure around an appropriate axis.

Ex) Describe and then sketch the figure that is generated by each rotation in three-dimensional space.

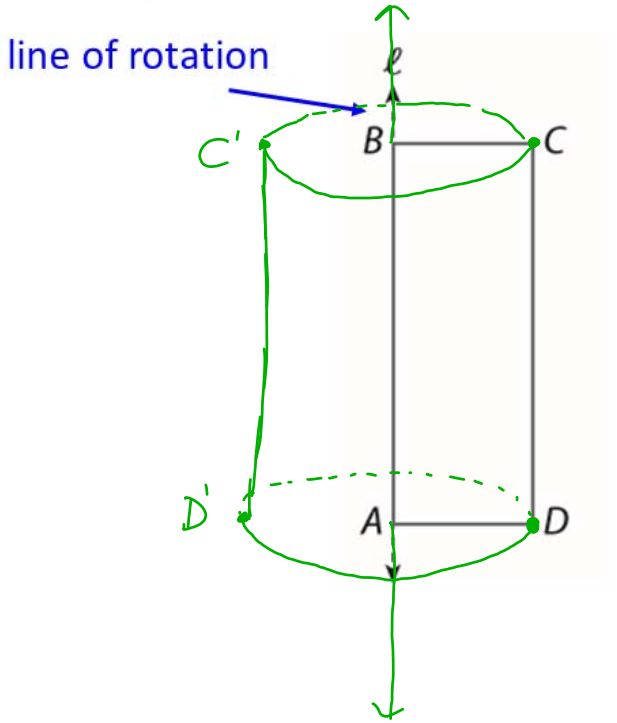
a right triangle rotated around a line containing one of its legs



Objective: Describe cross sections and solids of rotation.

Ex) Describe and then sketch the figure that is generated by each rotation in three-dimensional space.

a rectangle rotated around a line containing one of its sides



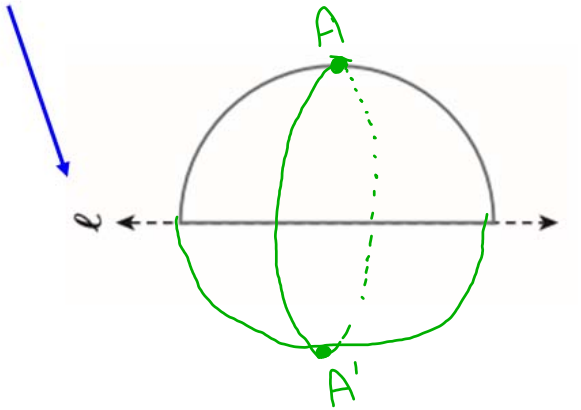
a cylinder

Objective: Describe cross sections and solids of rotation.

Practice) Describe and then sketch the figure that is generated by each rotation in three-dimensional space.

a semicircle rotated around a line containing its diameter

line of rotation



a sphere

Objective: Describe cross sections and solids of rotation.

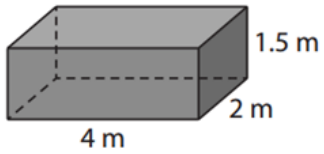
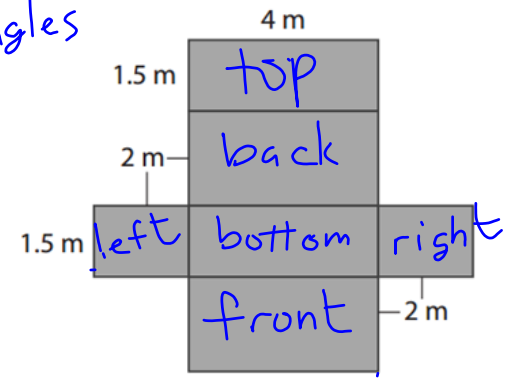
Concept

A **net** is a diagram of the surfaces of a three-dimensional figure that can be folded to form the three-dimensional figure. Nets are drawn with the following rules:

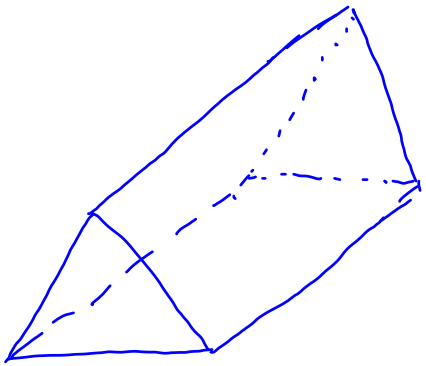
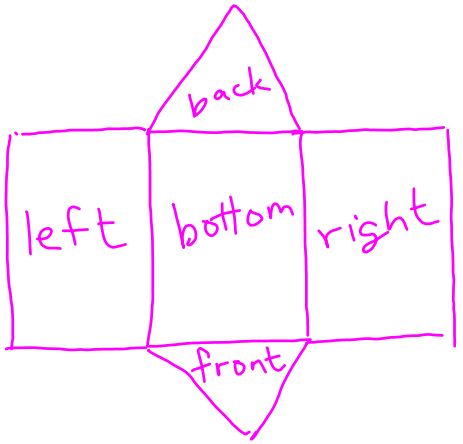
- Each face appears exactly once.
- If two faces are joined at an edge in the net, they must be joined at this edge in the solid.
- The faces form one non-overlapping surface.

To identify a three-dimensional figure from a net, look at the number of faces and the shape of each face.

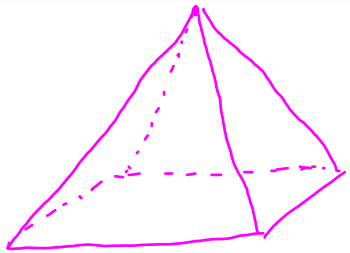
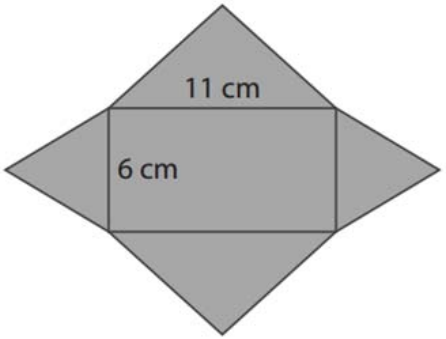
Complete each row of the table.

Type of Solid	Example	Faces	Net
rectangular prism		6 rectangles	

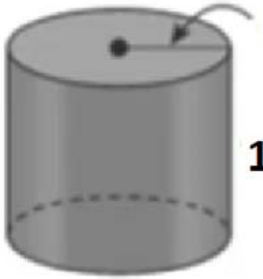
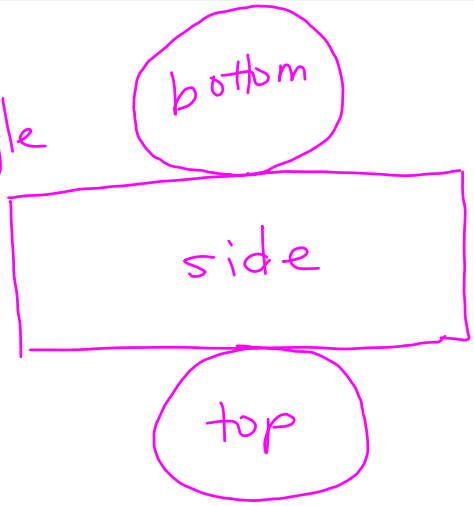
Objective: Describe cross sections and solids of rotation.

Type of Solid	Example	Faces	Net
triangular prism		a pair of congruent triangles and 3 rectangles	

Objective: Describe cross sections and solids of rotation.

Type of Solid	Example	Faces	Net
rectangular pyramid		a rectangle and 2 pairs of congruent isosceles triangles	

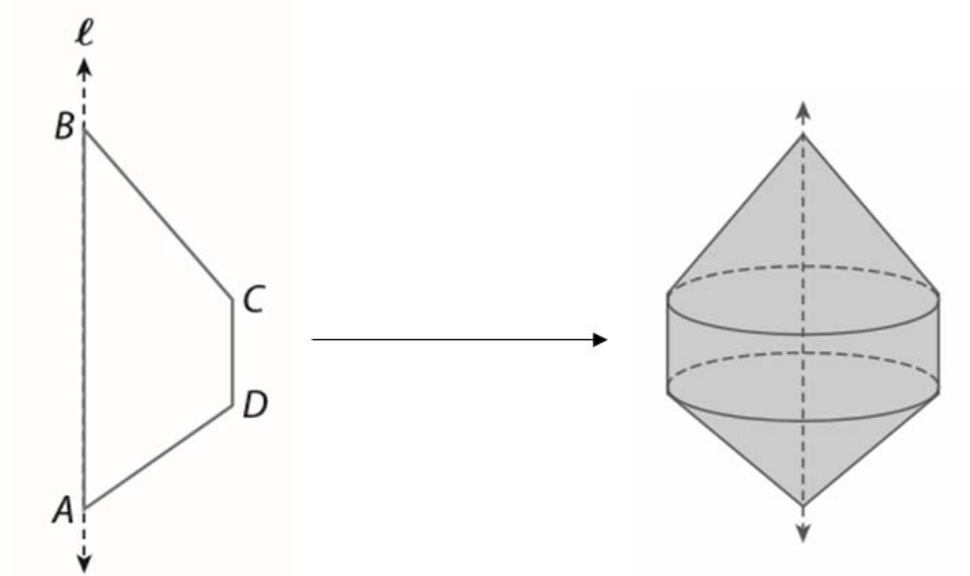
Objective: Describe cross sections and solids of rotation.

Type of Solid	Example	Faces	Net
cylinder		2 circles 1 rectangle	

Objective: Describe cross sections and solids of rotation.

Closure

How would you describe the solid generated by rotating the trapezoid shown?



The solid generated by the rotation is a composite figure of two cones with a cylinder in between.