

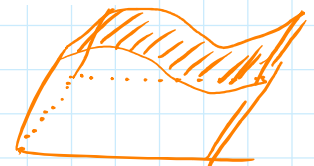
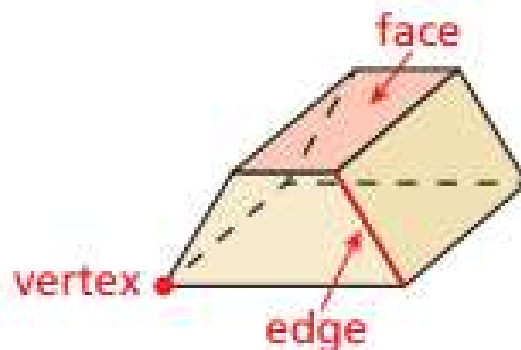
What You Will Learn

- ▶ Classify solids.
- ▶ Describe cross sections.
- ▶ Sketch and describe solids of revolution.

Classifying Solids

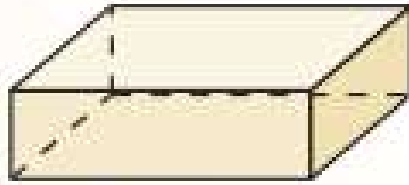
A three-dimensional figure, or solid, is bounded by flat or curved surfaces that enclose a single region of space. A **polyhedron** is a solid that is bounded by polygons, called **faces**. An **edge** of a polyhedron is a line segment formed by the intersection of two faces.

A **vertex** of a polyhedron is a point where three or more edges meet. The plural of polyhedron is *polyhedra* or *polyhedrons*.

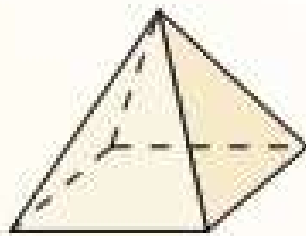


Types of Solids

Polyhedra



prism

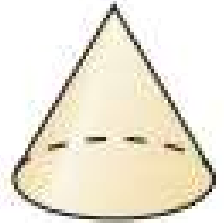


pyramid

Not Polyhedra



cylinder



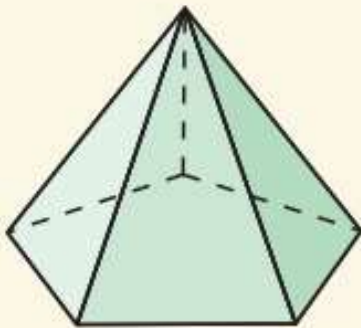
cone



sphere

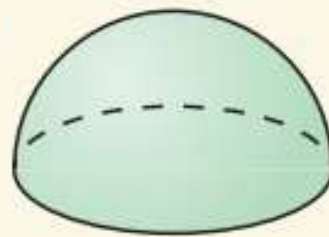
Tell whether each solid is a polyhedron.
If it is, name the polyhedron.

a.



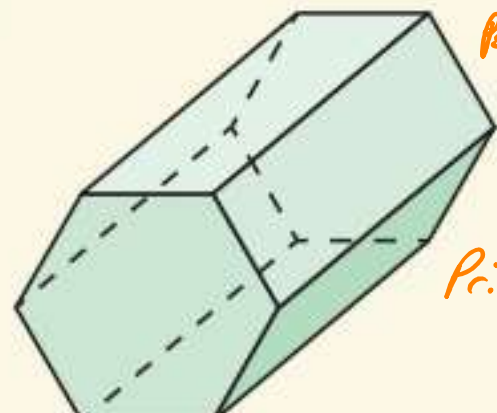
*Polyhedron
Pyramid*

b.



*Non-Polyhedron
Hemisphere*

c.

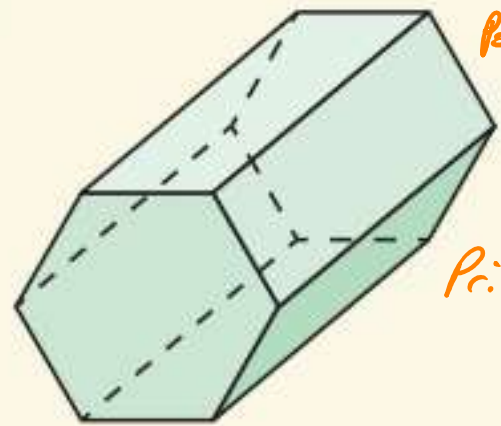


*Polyhedron
Prism*



Polyhedron
Pyramid

c.

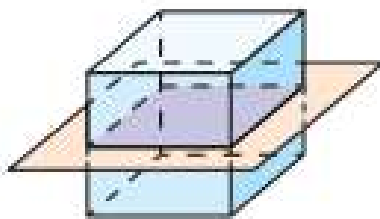


Polyhedron

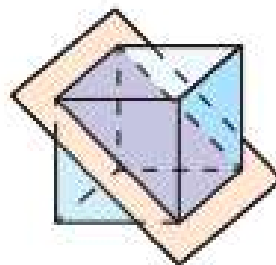
Prism

Describing Cross Sections

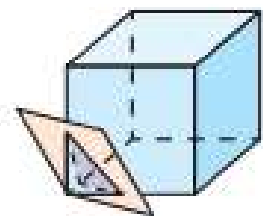
Imagine a plane slicing through a solid. The intersection of the plane and the solid is called a **cross section**. For example, three different cross sections of a cube are shown below.



square



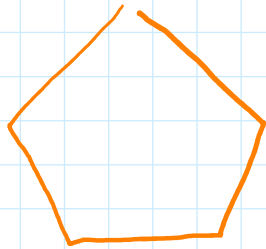
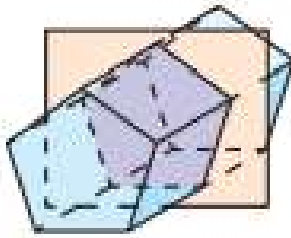
rectangle



triangle

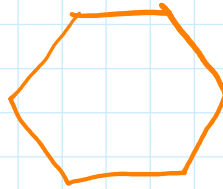
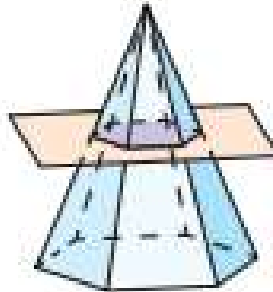
Describe the shape formed by the intersection of the plane and the solid.

4.



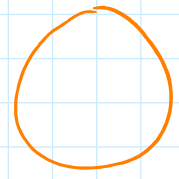
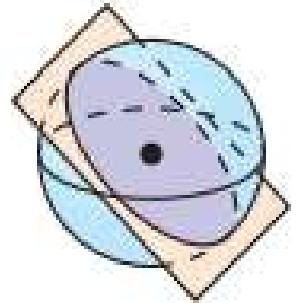
Pentagon

5.



Hexagon

6.

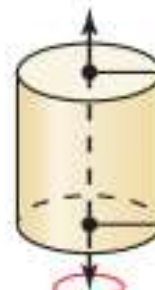


circle

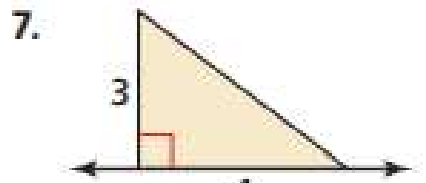
Sketching and Describing Solids of Revolution

A **solid of revolution** is a three-dimensional figure that is formed by rotating a two-dimensional shape around an axis. The line around which the shape is rotated is called the **axis of revolution**.

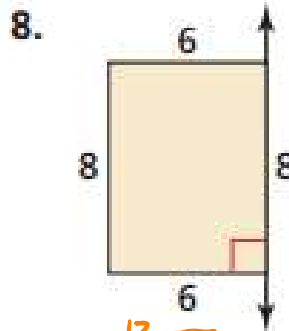
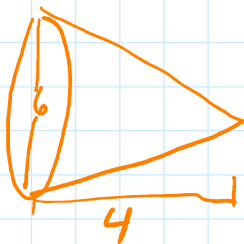
For example, when you rotate a rectangle around a line that contains one of its sides, the solid of revolution that is produced is a cylinder.



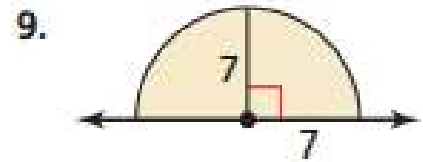
Sketch the solid produced by rotating the figure around the given axis. Then identify and describe the solid.



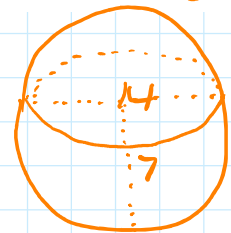
Non-Polyhedron
Cone



Cylinder
Non-Polyhedron



Sphere
Non-Polyhedron



Practice sec 11.4 pg. 621:
1-7A, 9-19EO, 37-39A

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