

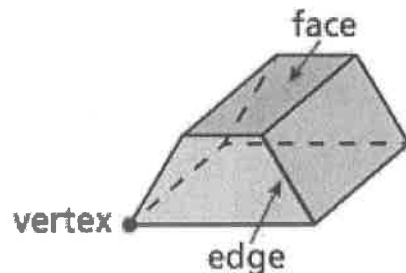
11.4 - 3D Figures

A 3D Figure, or Solid, is bounded by flat or curved surfaces that enclose a single region of space.

A polyhedron (plural *polyhedra* or *polyhedrons*) is a solid that is bounded by polygons, called faces.

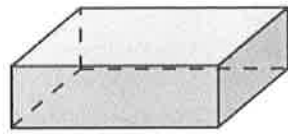
Edge - Segment formed by intersection of two faces

Vertex - point where 3 or more edges meet

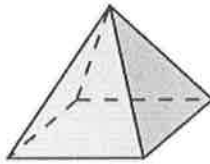


Types of Solids

Polyhedra



prism



pyramid

Not Polyhedra



cylinder



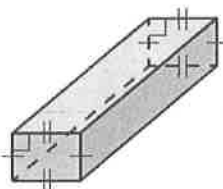
cone



sphere

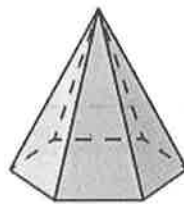
Tell whether each solid is a polyhedron. If it is, name the polyhedron.

a.



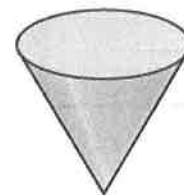
yes, rectangular prism

b.



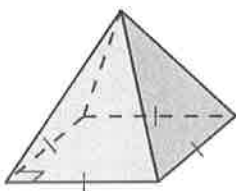
yes, pentagonal pyramid

c.



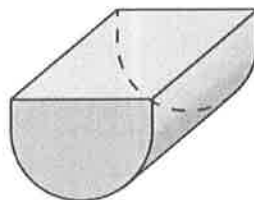
no

1.



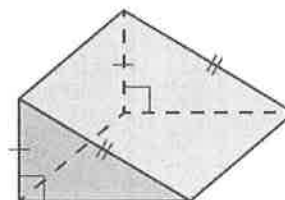
yes, square pyramid

2.



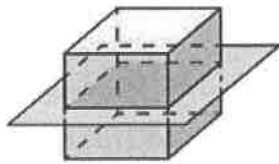
no

3.



yes triangular prism

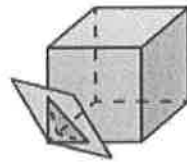
Imagine a plane slicing through a solid. The intersection of the plane and the solid is called a **cross section**. For example, three different cross sections of a cube are shown below.



square

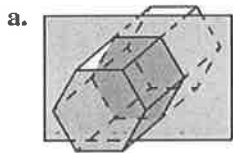


rectangle

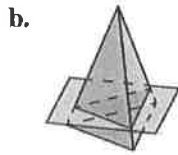


triangle

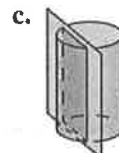
Describe the shape formed by the intersection of the plane and the solid.



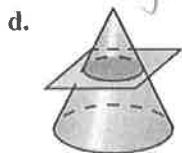
hexagon



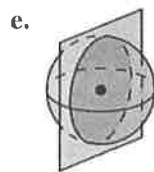
triangle



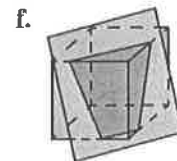
rectangle



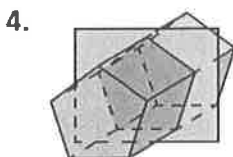
circle



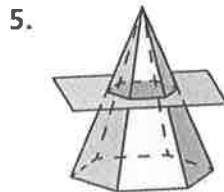
circle



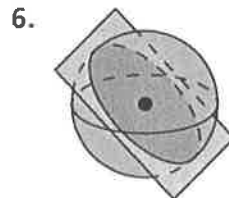
quadrilateral



pentagon



hexagon



circle

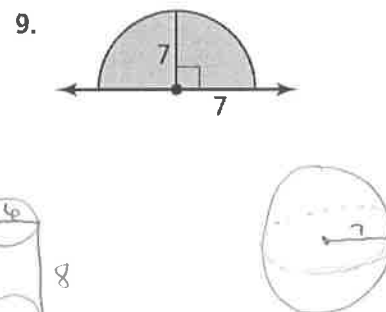
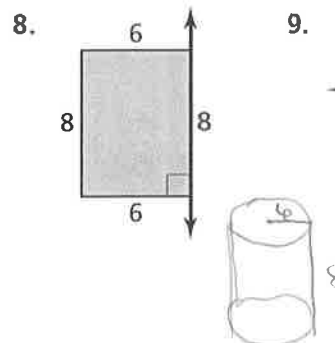
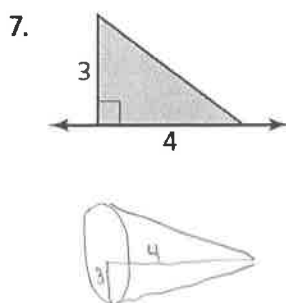
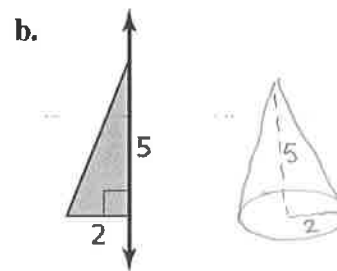
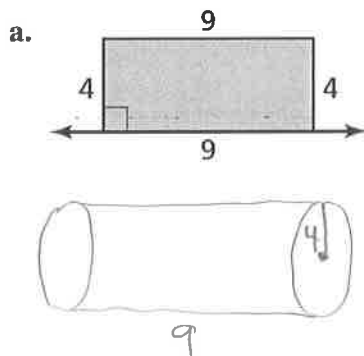
Sketching and Describing Solids of Revolution

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.



Homework:

pg. 621 #3 - 18, 28-35