

11.4

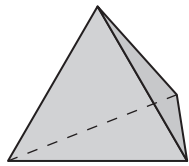
Three-Dimensional Figures

For use with Exploration 11.4

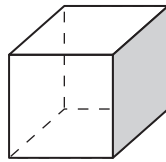
Essential Question What is the relationship between the numbers of vertices V , edges E , and faces F of a polyhedron?

1 EXPLORATION: Analyzing a Property of Polyhedra

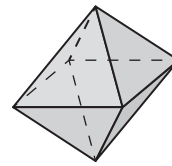
Work with a partner. The five *Platonic solids* are shown below. Each of these solids has congruent regular polygons as faces. Complete the table by listing the numbers of vertices, edges, and faces of each Platonic solid.



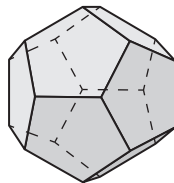
tetrahedron



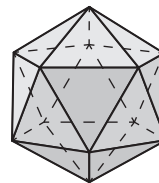
cube



octahedron



dodecahedron



icosahedron

Solid	Vertices, V	Edges, E	Faces, F
tetrahedron			
cube			
octahedron			
dodecahedron			
icosahedron			

11.4**Notetaking with Vocabulary**

For use after Lesson 11.4

In your own words, write the meaning of each vocabulary term.

polyhedron

face

edge

vertex

cross section

solid of revolution

axis of revolution

Notes:

11.4 Notetaking with Vocabulary (continued)

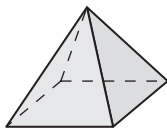
Core Concepts

Types of Solids

Polyhedra



prism



pyramid

Not Polyhedra



cylinder



cone



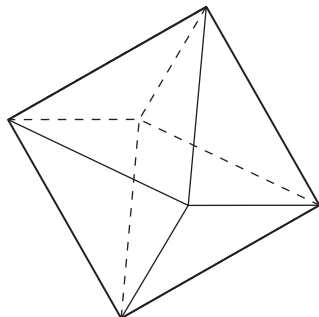
sphere

Notes:

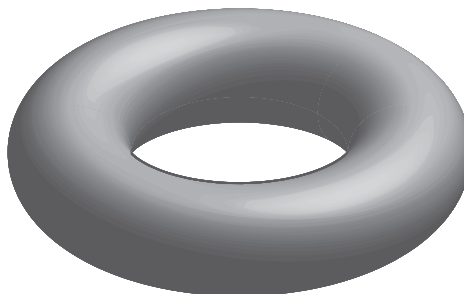
Extra Practice

In Exercises 1 and 2, tell whether the solid is a polyhedron. If it is, name the polyhedron.

1.



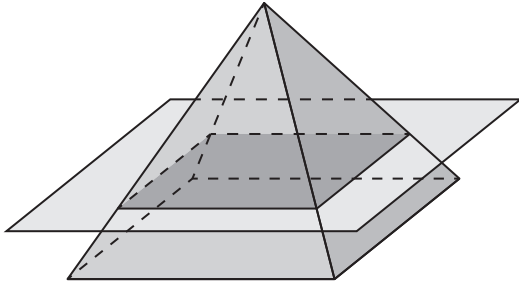
2.



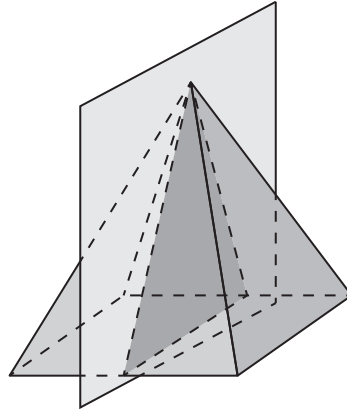
11.4 Notetaking with Vocabulary (continued)

In Exercises 3–6, describe the cross section formed by the intersection of the plane and the solid.

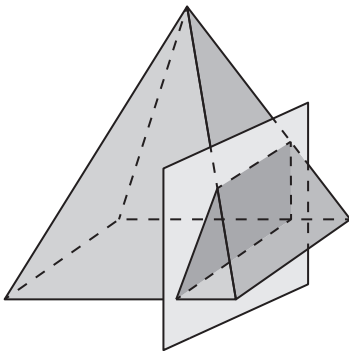
3.



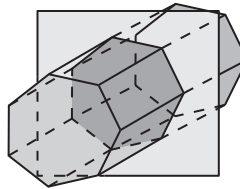
4.



5.

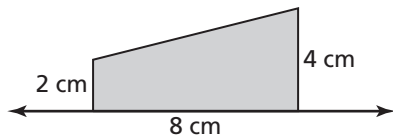


6.



In Exercises 7 and 8, sketch the solid produced by rotating the figure around the given axis. Then identify and describe the solid.

7.



8.

