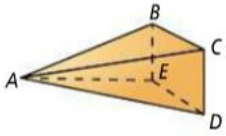
Day 11 – 11.1 Intro to Solids HW

p. 691 #1-13 odd, 18-20, 38

Lesson Check

Do you know HOW?

1. How many faces, edges, and vertices are in the solid? List them.



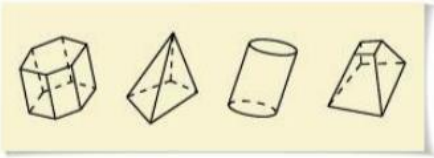
2. What is a net for the solid in Exercise 1? Verify Euler's Formula for the net.

3. What is the cross section formed by the cube and the plane containing the diagonals of a pair of opposite faces?

Do you UNDERSTAND? MATHEMATICAL PRACTICES

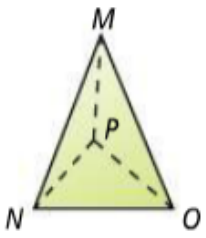
4. **Vocabulary** Suppose you build a polyhedron from two octagons and eight squares. Without using Euler's Formula, how many edges does the solid have? Explain.

5. **Error Analysis** Your math class is drawing polyhedrons. Which figure does not belong in the diagram below? Explain.

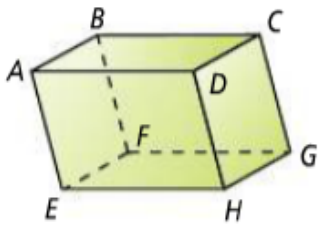


For each polyhedron, how many vertices, edges, and faces are there? List them. See

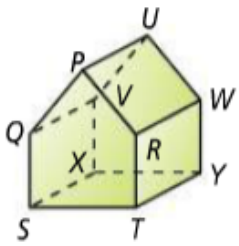
6.



7.



8.



For each polyhedron, use Euler's Formula to find the missing number. See

9. faces: ■
edges: 15
vertices: 9

10. faces: 8
edges: ■
vertices: 6

11. faces: 20
edges: 30
vertices: ■

Use Euler's Formula to find the number of vertices in each polyhedron.

12. 6 square faces

13. 5 faces: 1 rectangle and 4 triangles

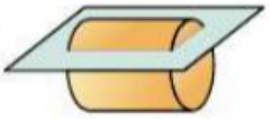
14. 9 faces: 1 octagon and 8 triangles

Describe each cross section.

See Pr

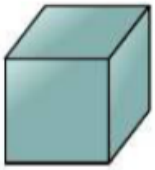
18. 

19. 

20. 

38. Platonic Solids There are five regular polyhedrons. They are called *regular* because all their faces are congruent regular polygons, and the same number of faces meet at each vertex. They are also called *Platonic solids* after the Greek philosopher Plato, who first described them in his work *Timaeus* (about 350 B.C.).

Tetrahedron



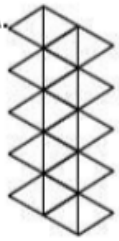
Hexahedron

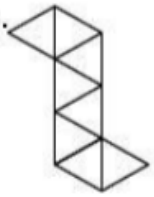
Octahedron

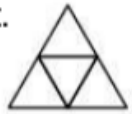
Dodecahedron

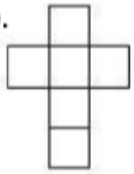
Icosahedron

a. Match each net below with a Platonic solid.

A. 

B. 

C. 

D. 

E. 

b. The first two Platonic solids have more familiar names. What are they?

c. Verify that Euler's Formula is true for the first three Platonic solids.