

# Skill

## 79

### Faces, Edges, Vertices

A polyhedron has faces that are polygons. The line where two faces meet is called an **edge**.

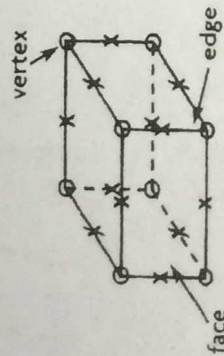
The point where three or more edges meet is called a **vertex**.

You can find the number of faces, edges, and vertices on solid figures.

#### Observe and Count

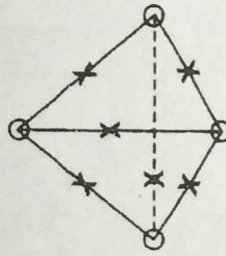
Count the number of faces, edges, and vertices on each figure.

#### Rectangular Prism



6 faces, 8 vertices,  
12 edges

#### Triangular Pyramid



4 faces, 4 vertices,  
6 edges

**Remember:** A prism is a solid figure with two congruent faces called *bases*.

A pyramid is a solid figure with one base and three or more triangular faces that share a common vertex.

#### Use a Formula

Use a formula to find the number of faces, edges, and vertices.

#### Prism

Let  $n$  = number of sides on the base.

$n + 2$  = number of faces

$n \times 2$  = number of vertices

$n \times 3$  = number of edges



$n = 4$

Faces:  $n + 2 = 4 + 2 = 6$

Vertices:  $n \times 2 = 4 \times 2 = 8$

Edges:  $n \times 3 = 4 \times 3 = 12$

So, a rectangular prism has 6 faces, 8 vertices, and 12 edges.

#### Pyramid

Let  $n$  = number of sides on the base.

$n + 1$  = number of faces

$n + 1$  = number of vertices

$n \times 2$  = number of edges



$n = 3$

Faces:  $n + 1 = 3 + 1 = 4$

Vertices:  $n + 1 = 3 + 1 = 4$

Edges:  $n \times 2 = 3 \times 2 = 6$

So, a triangular pyramid has 4 faces, 4 vertices, and 6 edges.

Go to the next side!

# Practice on Your Own

# Skill 79

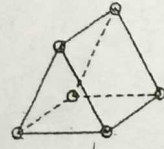
### Prism

Let  $n = 3$ .

Faces:  $n + 2 = 3 + 2 = 5$

Vertices:  $n \times 2 = 3 \times 2 = 6$

Edges:  $n \times 3 = 3 \times 3 = 9$



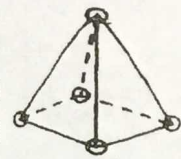
### Pyramid

Let  $n = 4$ .

Faces:  $n + 1 = 4 + 1 = 5$

Vertices:  $n + 1 = 4 + 1 = 5$

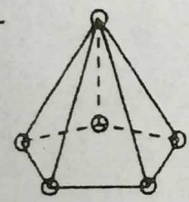
Edges:  $n \times 2 = 4 \times 2 = 8$



Write whether to use the formula for *prism* or *pyramid*. Then use the formula to find the number of faces, vertices, and edges.

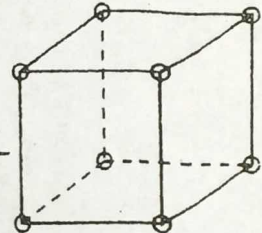
1 Use formula for \_\_\_\_\_

faces: \_\_\_\_\_  
 vertices: \_\_\_\_\_  
 edges: \_\_\_\_\_

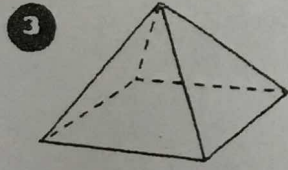


2 Use formula for \_\_\_\_\_

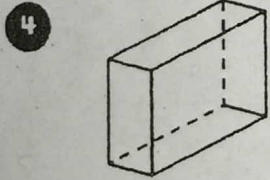
faces: \_\_\_\_\_  
 vertices: \_\_\_\_\_  
 edges: \_\_\_\_\_



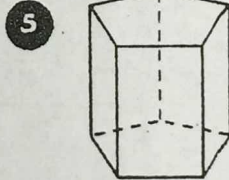
Write the number of faces, vertices, and edges.



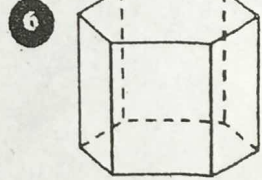
faces: \_\_\_\_\_  
 vertices: \_\_\_\_\_  
 edges: \_\_\_\_\_



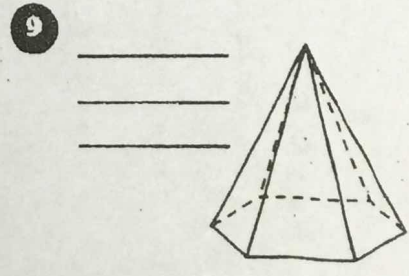
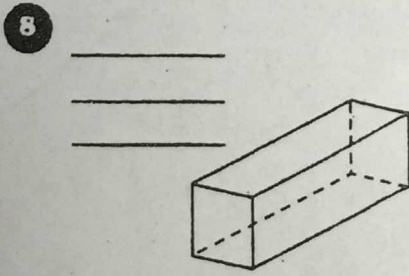
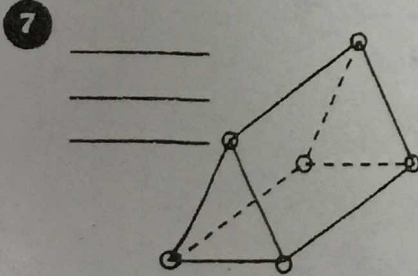
faces: \_\_\_\_\_  
 vertices: \_\_\_\_\_  
 edges: \_\_\_\_\_



faces: \_\_\_\_\_  
 vertices: \_\_\_\_\_  
 edges: \_\_\_\_\_



faces: \_\_\_\_\_  
 vertices: \_\_\_\_\_  
 edges: \_\_\_\_\_



Write the number of faces, vertices, and edges.

