



## Solid Figures

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**Goal:** Classify solids.



### Vocabulary

Solid:

Prism:

Cylinder:

Pyramid:

Cone:

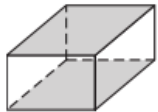
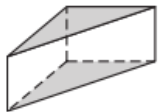
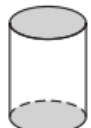
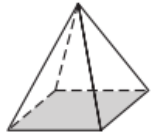


Sphere:

Face:

Edge:

Vertex:

*\* congruent means equal*

| Classifying Solids   |   |   |
|--|---|---|
|  <p><b>Rectangular prism</b></p> |  <p><b>Triangular prism</b></p>  |                    |
| <p>A <b>prism</b> is a solid with two <b>parallel</b> bases that are <b>congruent</b> polygons.</p>                |   | <p>A <b>cylinder</b> is a solid with two <b>parallel</b> bases that are <b>congruent</b> circles.</p> |
|                                  | <p>A <b>pyramid</b> is a solid made up of <b>polygons</b>. The base can be any <b>polygon</b>, and the other polygons are <b>triangles</b> that share a common <b>vertex</b>.</p> |   |
|                                  | <p>A <b>cone</b> is a solid that has one <b>circular</b> base and a <b>vertex</b> that is not in the same plane.</p>  |   |
|                                 | <p>A <b>sphere</b> is the set of all points that are the same <b>distance</b> from a point called the <b>center</b>.</p>  |   |

**EXAMPLE 1** Classifying Solids

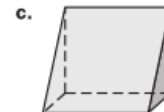
Classify the solid.



**rectangular prism**



**sphere**



**triangular prism**

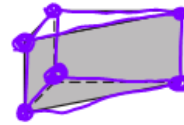
**WATCH OUT!**

The base(s) of a prism do not have to be on the top or bottom of the solid. They can be on the left- or right-hand side of the solid as in Example 1(c).

**EXAMPLE 2** Counting Faces, Edges, and Vertices

To make sure that you accurately count the number of edges and vertices in a solid, you can make a mark on each edge and vertex as you are counting.

Count the number of faces, edges, and vertices of the triangular prism shown.

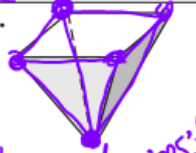
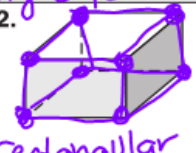



**Answer:** There are 3 rectangular faces and 2 triangular base(s) for a total of 5 faces. There are 9 edges. There are 6 vertices.

**EXAMPLE 3** Drawing a Solid

1. To draw a rectangular pyramid, first draw the base and a point above the base.
2. Then connect each vertex of the base to the point above the base.
3. Partially erase hidden lines to create dashed lines.

**Your turn now** Classify the solid. Then count the number of faces, edges, and vertices.

|   |   |  |
|---|---|--|
| <p>1. </p> <p><i>Pyramid<br/>faces: 5<br/>edges: 8<br/>vertices: 5</i></p> | <p>2. </p> <p><i>rectangular prism<br/>faces: 6<br/>edges: 12<br/>vertices: 8</i></p> | <p>3. </p> |
| <p>4. A pentagonal pyramid is a pyramid whose base is a pentagon. Draw a pentagonal pyramid.</p>  |   |  |