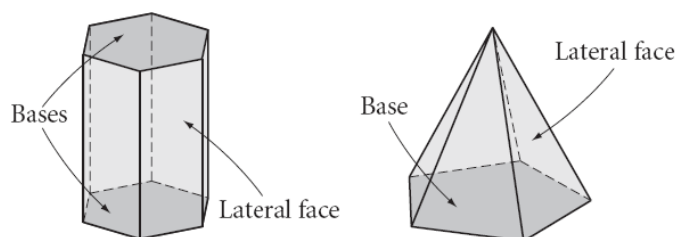


Surface Area and Volume

The surface area of a solid refers to the area of the surface, which is actually two-dimensional. A solid's surface is often composed of standard shapes; to find the surface, you have to find the sum of the areas of these shapes.



Some solids have a base or two whose areas must be included in the sum. Also included are the areas of the sides (or lateral faces), which in this book are primarily rectangles or triangles. The lateral face of a cylinder, when flattened out, is a rectangle. The lateral face of a cone, when flattened out, is a sector of a circle.

Definition 1: The **lateral area** of a solid figure is the sum of the areas of its lateral faces.

Definition 2: The **surface area** of a solid figure is the sum of the areas of all its surfaces.

The amount of water a fish tank can hold, the amount of grain a silo can hold, or the amount of concrete needed for a patio floor are all examples of volume.

Volume measures the space contained within a solid. Volume is measured in cubic units. The cube below has a volume of 1 cubic centimeter or 1 cm^3 . Each of its sides is 1 centimeter long.

