

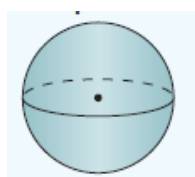
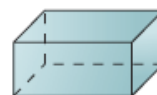
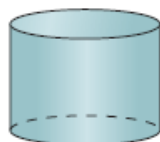
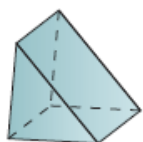
Surface Area and Volume Unit

Chapter 11

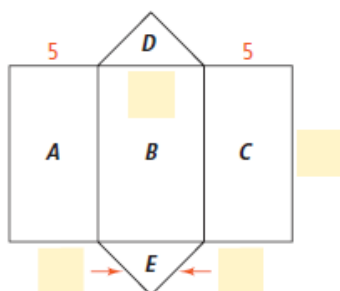
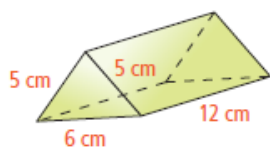
Vocabulary

-Prism, Cylinder, Cone, Pyramid, Face, Edge, Base, Slqant, Height, Vertex, Sphere, Net

Solid Figures



Nets



Prism - A solid object that has two identical ends and all flat sides.

Pyramid - A solid figure with a polygonal base and triangular faces that meet at a common point.

Cylinder - A solid object with two identical flat ends that are circular or elliptical and one curved side.

Cone - A solid (3-dimensional) object that has a circular base and one vertex

Sphere - A 3-dimensional object shaped like a ball in which every point on the surface is the same distance from the center.

11-2 Surface Area of Prisms and Cylinders

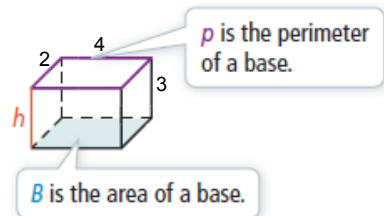
Vocabulary

-Lateral Area, Surface Area

Lateral and Surface Area of Prisms and Cylinders

The lateral area is the sum of the areas of all of the lateral faces.

Find the lateral area of the figure at the right.

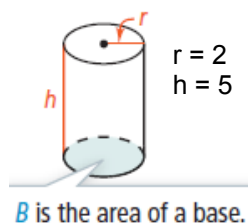


The surface area of a right prism is the sum of the lateral area and the areas of the two bases.

$$S.A. = L.A. + 2B$$

Find the surface area of the figure above.

Find the lateral area and surface area of the cylinder below.



11-4 Volume of Prisms and Cylinders

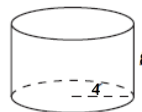
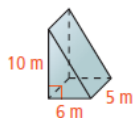
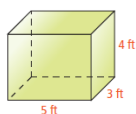
Vocabulary

-Volume

Volume of Prisms and Cylinders

To find the volume of a prism and/or cylinder, you will need to find the product of the area of the base and the height.

Find the volume of the solid figures below.



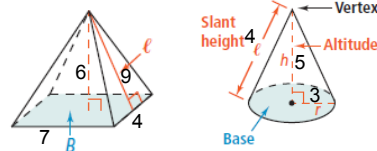
11-3 Surface Area of Pyramids and Cones

Lateral Area of Pyramids and Cones

The lateral area of both pyramids and cones can be found by finding the product of $\frac{1}{2}$, the perimeter of the base, and the slant height.

In a pyramid, the formula looks like this: $LA = \frac{1}{2}p\ell$

In a cone, the formula looks like this: $LA = \frac{1}{2} \cdot 2\pi r \cdot \ell$



Find the lateral areas of the pyramid and the cone.

Surface Area of Pyramids and Cones

The surface area of both pyramids and cones can be found by finding the sum of the lateral area and the base.

Find the surface area of the pyramid and the cone above.

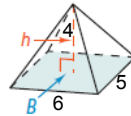
11-5 Volume of Pyramids and Cones

Volume of Pyramids and Cones

The volume of both pyramids and cones can be found by finding the product of $\frac{1}{3}$, the base area, and the height.

In a pyramid, the formula looks like this: $V = \frac{1}{3} Bh$

In a cone, the formula looks like this: $V = \frac{1}{3} \pi r^2 h$



Find the volumes of the pyramid and cone.

11-6 Surface Area and Volume of Spheres

Surface Area of Spheres

The surface area of a sphere is four times the product of π and the square of the radius of the sphere.

$$\text{S.A.} = 4\pi r^2$$

Find the surface area of the sphere.



Volume of Spheres

The volume of a sphere is four thirds times the product of π and the radius cubed.

$$V = \frac{4}{3}\pi r^3$$

Find the surface area of the sphere.