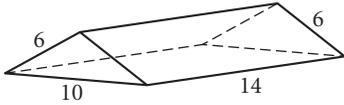


Lesson 10.2 • Volume of Prisms and Cylinders

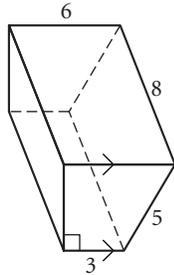
Name _____ Period _____ Date _____

In Exercises 1–3, find the volume of each prism or cylinder. All measurements are in centimeters. Round your answers to the nearest 0.01.

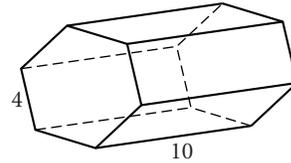
1. Right triangular prism



2. Right trapezoidal prism

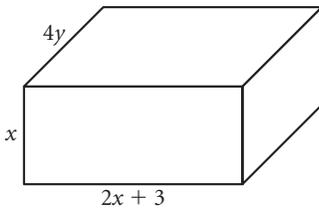


3. Regular hexagonal prism

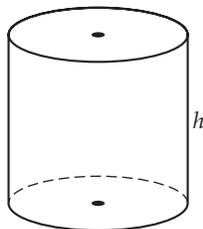


In Exercises 4–6, use algebra to express the volume of each solid.

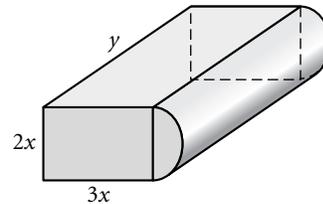
4. Right rectangular prism



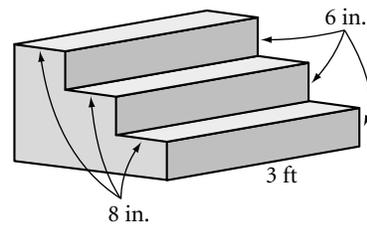
5. Right cylinder;
base circumference = $p\pi$



6. Right rectangular prism
and half of a cylinder



7. You need to build a set of solid cement steps for the entrance to your new house. How many cubic feet of cement do you need?

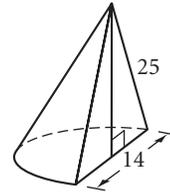
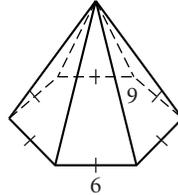
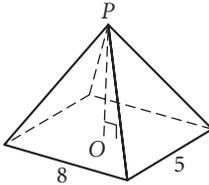


Lesson 10.3 • Volume of Pyramids and Cones

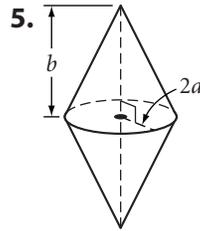
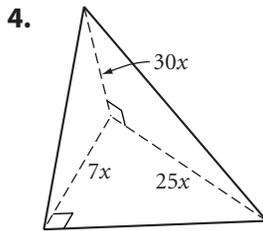
Name _____ Period _____ Date _____

In Exercises 1–3, find the volume of each solid. All measurements are in centimeters. Round your answers to two decimal places.

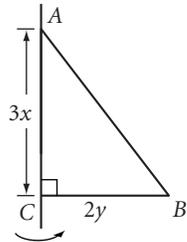
1. Rectangular pyramid; $OP = 6$ 2. Right hexagonal pyramid 3. Half of a right cone



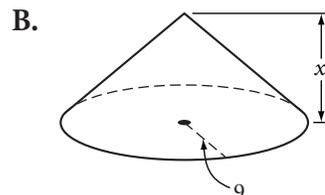
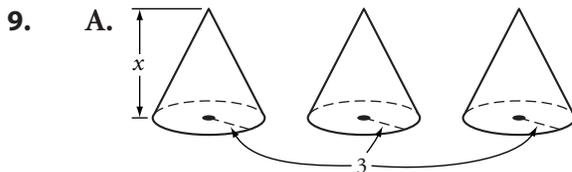
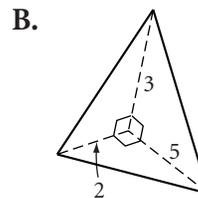
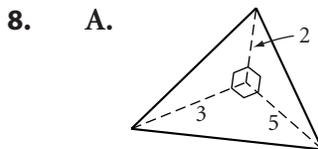
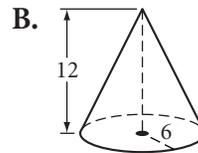
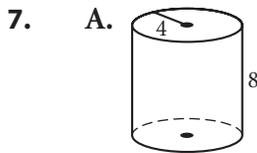
In Exercises 4–6, use algebra to express the volume of each solid.



6. The solid generated by spinning $\triangle ABC$ about the axis



In Exercises 7–9, find the volume of each figure and tell which volume is larger.

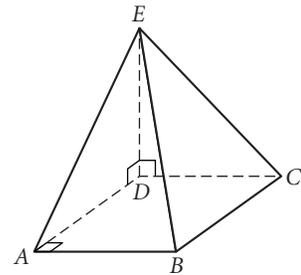


Lesson 10.4 • Volume Problems

Name _____ Period _____ Date _____

1. A cone has volume 320 cm^3 and height 16 cm. Find the radius of the base. Round your answer to the nearest 0.1 cm.
2. How many cubic inches are there in one cubic foot? Use your answer to help you with Exercises 3 and 4.
3. Jerry is packing cylindrical cans with diameter 6 in. and height 10 in. tightly into a box that measures 3 ft by 2 ft by 1 ft. All rows must contain the same number of cans. The cans can touch each other. He then fills all the empty space in the box with packing foam. How many cans can Jerry pack in one box? Find the volume of packing foam he uses. What percentage of the box's volume is filled by the foam?
4. A king-size waterbed mattress measures 72 in. by 84 in. by 9 in. Water weighs 62.4 pounds per cubic foot. An empty mattress weighs 35 pounds. How much does a full mattress weigh?

5. Square pyramid $ABCDE$, shown at right, is cut out of a cube with base $ABCD$ and shared edge \overline{DE} . $AB = 2 \text{ cm}$. Find the volume and surface area of the pyramid.



6. In Dingwall the town engineers have contracted for a new water storage tank. The tank is cylindrical with a base 25 ft in diameter and a height of 30 ft. One cubic foot holds about 7.5 gallons of water. About how many gallons will the new storage tank hold?

7. The North County Sand and Gravel Company stockpiles sand to use on the icy roads in the northern rural counties of the state. Sand is brought in by tandem trailers that carry 12 m^3 each. The engineers know that when the pile of sand, which is in the shape of a cone, is 17 m across and 9 m high they will have enough for a normal winter. How many truckloads are needed to build the pile?

