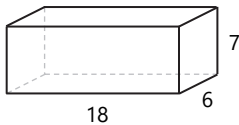


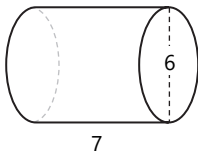
LESSON 169 Review: Surface Areas and Volumes

Leave your answers in simplest radical form and in terms of π unless directed otherwise.

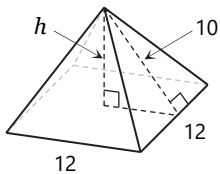
1. Sketch a net of a square pyramid.
2. A polyhedron has 20 faces and 30 edges. How many vertices does it have?
3. Find the surface area and volume of the rectangular prism.



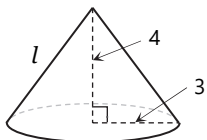
4. Find the surface area and volume of the right cylinder.



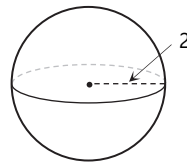
5. Find the surface area and volume of the square pyramid.



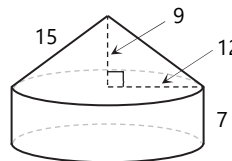
6. Find the surface area and volume of the right cone.



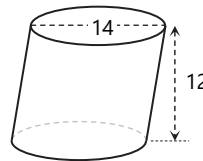
7. Find the surface area and volume of the sphere.



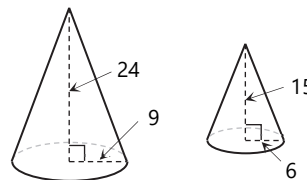
8. The solid is a cylinder with a cone on top. Find the surface area and volume of the solid.



9. Use Cavalieri's Principle to find the volume of the oblique cylinder.

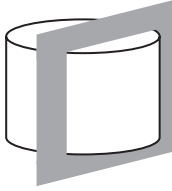


10. Determine if two solids are similar.



11. Two similar pyramids have volumes 40 ft^3 and 135 ft^3 . The base area of the smaller pyramid is 12 ft^2 . What is the base area of the larger pyramid?

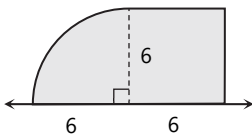
12. Describe the cross section formed by the intersection of the plane and the cylinder.



13. Which shape cannot be a cross section of a cylinder?

- A) circle B) ellipse (oval)
C) triangle D) rectangle

14. Sketch and describe the solid created by rotating the figure around the given line.



15. Find the volume and surface area of the solid of revolution above.

16. A spherical balloon with radius 15 inches is leaking air at 30 cubic inches per minute. How long will it take for the balloon to empty fully? Use $\frac{22}{7}$ as π . Round all calculations to the nearest whole number.

17. Water weighs about 62 pounds per cubic foot. An aquarium is a rectangular box 12 feet long, 6 feet wide, and 6 feet tall. How many pounds of water can the aquarium hold? Round your answer to the nearest pound.

18. The density of water is about 1 gram per cubic centimeter. A plastic cube has side length 2 cm and weighs 6 grams. Will the cube float or sink in water?

19. The population density of a town is 320 people per square mile. The area of the town is 92 square miles. What is the population of the town? Round your answer to the nearest whole number.

20. (HONORS) What is the radius of a sphere whose surface area and volume are equal?

21. (HONORS) A right cylinder with radius 5 cm and height 6 cm is cut perpendicular to the base. What is the area of the largest possible cross section?

22. (HONORS) Trapezoid $ABCD$ has vertices $A(0, 0)$, $B(6, 0)$, $C(3, 3)$, and $D(0, 3)$. The trapezoid is rotated around the y -axis. What is the volume of the solid formed by this rotation?

23. (HONORS) An empty cube-shaped container has side length 10 feet. The container is filled with water at a rate of 12 cubic feet per minute while water leaks from the bottom of the container at a rate of 3 cubic feet per minute. How long will it take the container to overflow? Round to the nearest minute.