Composite Volumes Sec. 13.2 Name:_____

Packaging and Shipping. Tennis balls have a 3-inch diameter are sold in cans of three. The can is a cylinder.

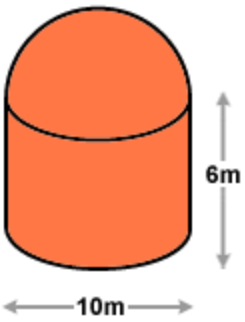
1. What is the volume of one tennis ball?

2. What is the internal volume (capacity) of the cylinder?

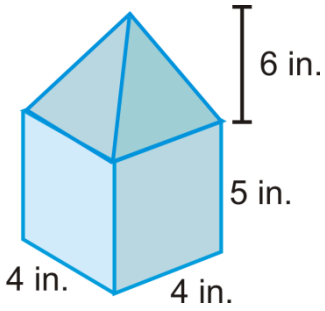
3. Assume the balls touch the can on the sides, top and bottom. How much space is left over?

Find the volume of each composite shape.

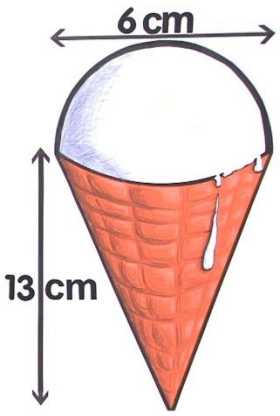
4.



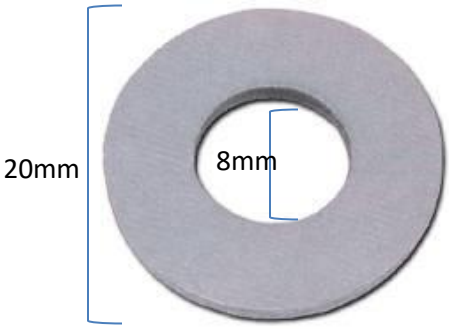
5.



6. The following ice cream cone is filled all the way to the bottom with ice cream. Find the volume of the ice cream.



7. Find the volume of the following metal washer. It is 0.5mm thick.



Nutrition. The whole cake is 9 cm high and 20 cm across. Each layer of cake is 2 cm thick, and each layer is separated by 1 cm of frosting.

8. What is the total volume of the entire cake (including the missing piece)?

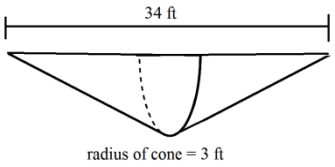
9. What is the volume of one layer of frosting (including the missing piece)?

10. What is the volume of all three layers of frosting? (including the missing piece)?

11. What is the volume of one layer of plain cake (without frosting) (including the missing piece)?

12. What is the volume of all three layers of plain cake, without the frosting (including the missing piece)?

13. A cone has been split vertically down the center and the two pieces have been placed together at their bases to make a "canoe" shape. The length of the radius is 3 ft and the length of the canoe shape from end to end is 34 ft. What is the volume of the figure?



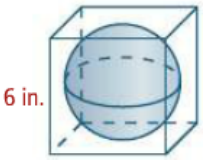
14. **Composite Figures** Use the diagram of the backpack at the right.

a. What two figures approximate the shape of the backpack?

b. What is the volume of the backpack in terms of π?

c. What is the volume of the backpack to the nearest cubic inch?

15. The sphere at the right fits snugly inside a cube with 6-in. edges. What is the approximate volume of the space between the sphere and the cube?



(A) 28.3 in.^{3}

(B) 76.5 in.^{3}

(C) 102.9 in.^{3}

(D) 113.1 in.^{3}