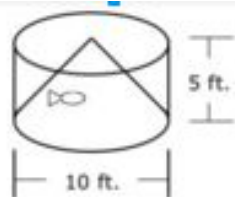
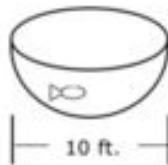


1.

The management of an ocean life museum will choose to include either Aquarium A or Aquarium B in a new exhibit.

Aquarium A is a right cylinder with a diameter of 10 feet and a height of 5 feet. Covering the lower base of Aquarium A is an “underwater mountain” in the shape of a 5-foot-tall right cone. This aquarium would be built into a pillar in the center of the exhibit room.

Aquarium B is half of a 10-foot-diameter sphere. This aquarium would protrude from the ceiling of the exhibit room.

**Aquarium A****Aquarium B**

a. How many cubic feet of water will Aquarium A hold?

B. How many cubic feet of water will Aquarium B hold?

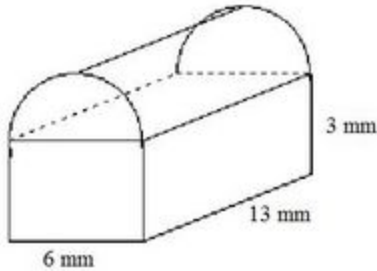
C. Can you show mathematically why the above match?

2. Using the above problem, if the ideal density for the size of fish in this tank is 0.5 fish per cubic foot. How many fish can each tank hold?

3. A golden-colored cube is handed to you. The person wants you to buy it for \$100, saying that is a gold nugget. You pull out your old geology textbook and look up gold in the mineral table, and read that gold's density is 19.3 g/cm^3 . You measure the cube and find that it is 2 cm on each side, and weighs 40 g. What is its density? Is it gold? Should you buy it?

4.

Find the volume of the composite space figure to the nearest whole number.



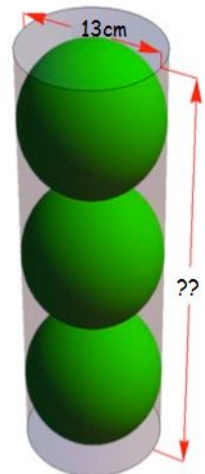
Not drawn to scale

- a. 602 mm^3 b. 223 mm^3 c. 418 mm^3 d. 293 mm^3

5. If the above shape has a mass of 145 g, what is its density in g/cm^3 ?

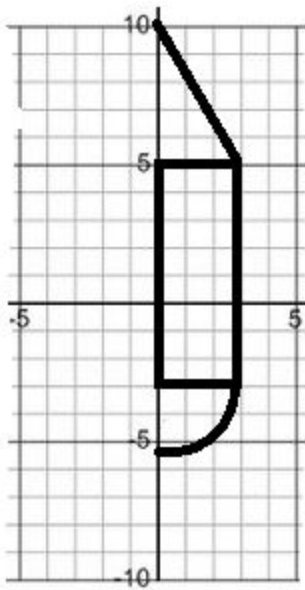
6. Three balls are packaged in a cylindrical container as shown below. The balls just touch the top, bottom, and sides of the cylinder. The diameter of each ball is 13 cm.

- A. What is the volume of the cylinder?
- B. What is the total volume of the three balls? Explain your method for finding the total volume.
- C. What percent of the volume of the container is occupied by the three balls?

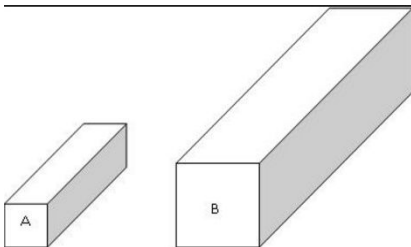


7. If the mass of a tennis ball is 75g, what is the density of a tennis ball?

8. Draw the 3-d shape that results from rotating the shape around the y-axis, and then solve for the volume of the complete 3d shape.

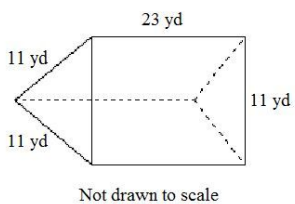


9. The following 2 square prisms are similar. If the Volume of A is 500 cm^3 and the length of one of the sides in A is 5cm, and the corresponding side on B is 12cm, what is the Volume of B?



10.

Find the volume of the given prism. Round to the nearest tenth if necessary.



- a. 2410.1 yd^3 b. 1205.1 yd^3 c. 983.9 yd^3 d. 1391.5 yd^3

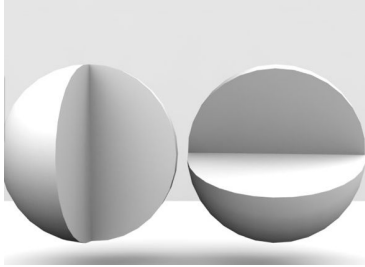
11. If this is a habitat for bunnies, how many bunnies can it hold if the recommended density is 2 bunnies per cubic yard?

12.

Concrete can be purchased by the cubic yard. How much will it cost to pour a slab 17 feet by 17 feet by 6 inches for a patio if the concrete costs \$53.00 per cubic yard?

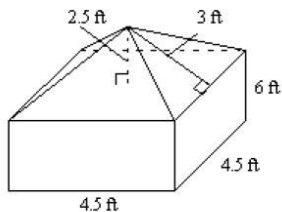
- a. \$1276.42 b. \$850.94 c. \$283.65 d. \$7658.50

13. Write an equation for the following sphere, and then solve the equation for radius.



14.

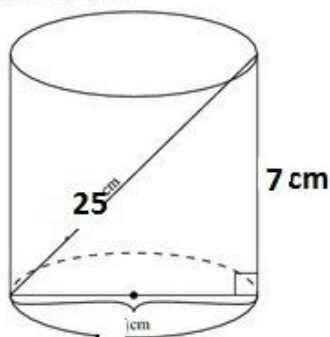
Find the surface area of the figure to the nearest whole number.



If you are covering these for the company, how many covers can you create in a paper that is 10 yds by 40 yds.

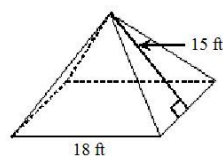
15.

A right cylinder is shown.



What is the volume, in cubic centimeters, of this right cylinder?

16. Find the volume of this square pyramid.



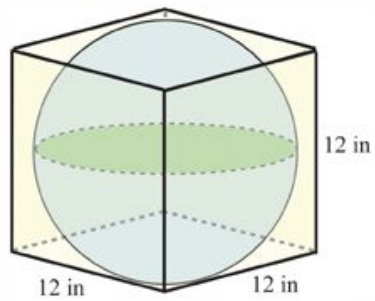
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- a. 1944 ft^3 b. 108 ft^3 c. 1296 ft^3 d. 3888 ft^3

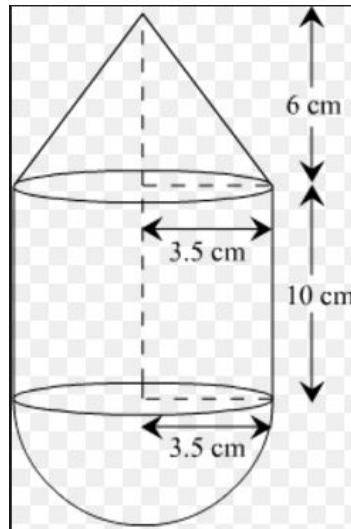
17. How many cubic centimeters would this be?

18. If this is made of silver, and the density of Silver is $10.5 \frac{\text{g}}{\text{cm}^3}$, then how many grams is the above pyramid?

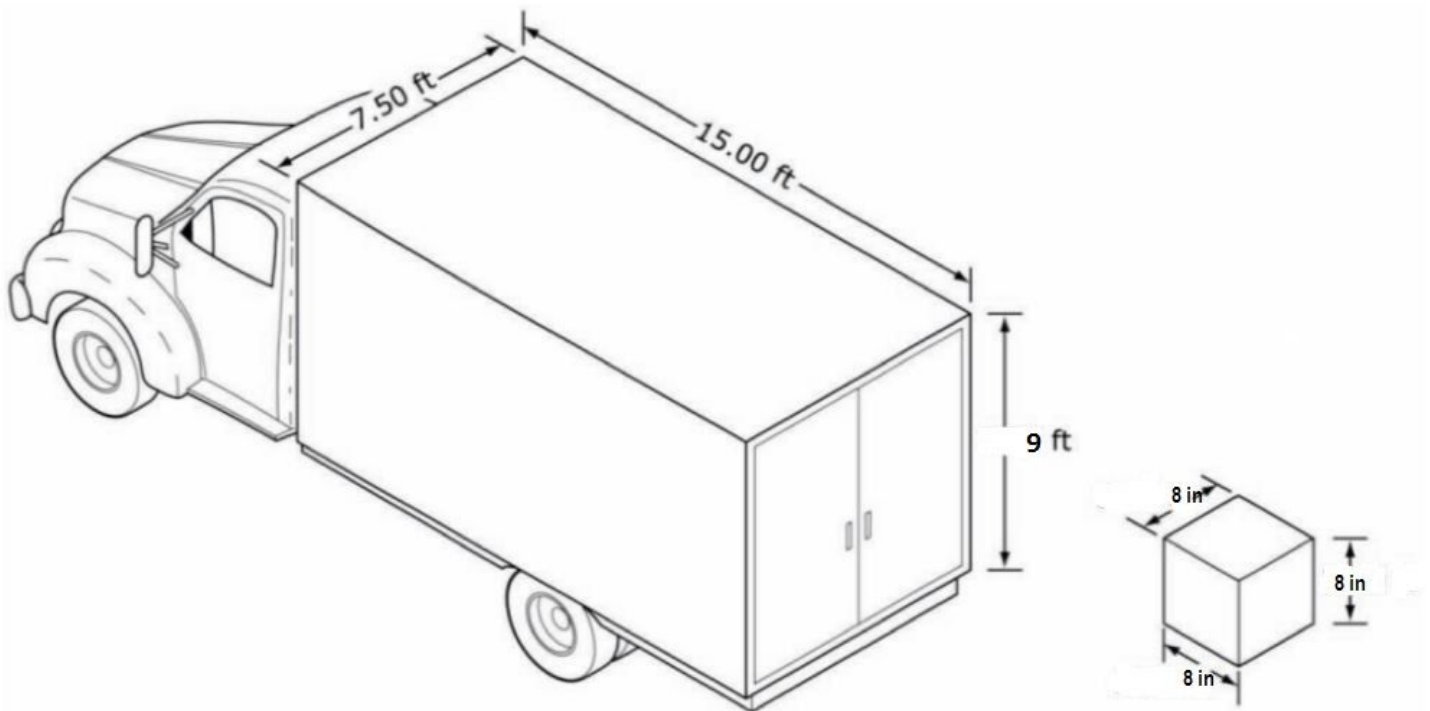
19. A sphere shape is removed from a cube. The sphere has the same diameter as the length of the cube. What is the volume that is left over?



20. Find the volume.



21. How many of the cubes could you fit in the back of this truck?



22.