1. Express, in cubic feet, the volume of a room whose dimensions are 12 feet long by 10 feet wide by 8 feet high.

2. The length of a rectangular solid is 3.0 meters, the width is 0.6 meter, and the height is 0.4 meter. Find, to the nearest tenth, the number of cubic meters in the volume of the solid.

3. The volume of a rectangular solid is 24 cubic centimeters. If the width is 2 centimeters and the length is 3 centimeters, what is the height, in *centimeters*, of the solid?

4. Two prisms have equal heights and equal volumes. The base of one is a pentagon and the base of the other is a square. If the area of the pentagonal base is 36 square inches, how many inches are in the length of each side of the square base?

   (1) 9            (2) 36            (3) 24            (4) 6

5. If $V = lwh$, what is the value of $V$ when $l = 2$, $w = 3$, and $h = 4x$?

   (1) $5 + 4x$       (2) $6 + 4x$       (3) $9x$          (4) $24x$

6. A right circular cylinder has a volume of 1,000 cubic inches and a height of 8 inches. What is the radius of the cylinder to the *nearest tenth of an inch*?

   (1) 39.8          (2) 6.3            (3) 19.8          (4) 11.2

7. The length of the edge of a cube is represented by $e$. Express the volume of the cube in terms of $e$.

8. The diameter of a basketball is approximately 9.5 inches and the diameter of a tennis ball is approximately 2.5 inches. The volume of the basketball is about how many times greater than the volume of the tennis ball?

   (1) 3591          (2) 65          (3) 55          (4) 4

9. A hemispherical water tank has an inside diameter of 10 feet. If water has a density of 62.4 pounds per cubic foot, what is the weight of the water in a full tank, to the *nearest pound*?

   (1) 16,336       (2) 32,673       (3) 130,690     (4) 261,381

10. Molly wishes to make a lawn ornament in the form of a solid sphere. The clay being used to make the sphere weighs .075 pound per cubic inch. If the sphere's radius is 4 inches, what is the weight of the sphere, to the *nearest pound*?

    (1) 34          (2) 20          (3) 15          (4) 4

11. William is drawing pictures of cross sections of the right circular cone below.
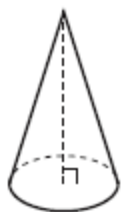


    Which drawing can *not* be a cross section of a cone?

    (1)                              (2)



    (3)                              (4)
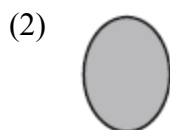
12. Walter wants to make 100 candles in the shape of a cone for his new candle business. The mold shown below will be used to make the candles. Each mold will have a height of 8 inches and a diameter of 3 inches. To the *nearest cubic inch*, what will be the total volume of 100 candles?



Walter goes to a hobby store to buy the wax for his candles. The wax costs $0.10 per ounce. If the weight of the wax is 0.52 ounce per cubic inch, how much will it cost Walter to buy the wax for 100 candles?

If Walter spent a total of $37.83 for the molds and charges $1.95 for each candle, what is Walter's profit after selling 100 candles?