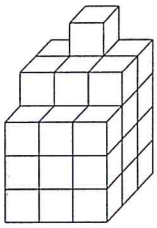
# 10-3 SOL Questions on Area

Name: _____ Time› Start: _____ Finish: _____ Total Time = _____

1.

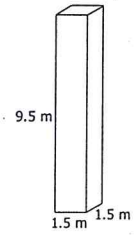


**Assuming the solid is constructed from cubes measuring 1 unit on each edge and that the figure is completely solid, what is the volume of the cubic solid shown above?**

F 12 cubic units
G 34 cubic units
H 59 cubic units
J 68 cubic units

2.

**A concrete pillar shaped as a rectangular prism is designed as follows.**




**Which is closest to the volume of concrete needed to fill the pillar?**

A $12.5\,m^3$
B $14.3\,m^3$
C $21.4\,m^3$
D $28.5\,m^3$

3.

**A right triangular pyramid has a height of 10 inches and a base area of 41.57 square inches. What is the volume, in cubic inches, of the pyramid?**

F 138.56
G 207.85
H 277.13
J 415.69

4.

**A fish tank in the shape of a rectangular prism has these dimensions:**

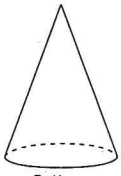
- **length = 20 inches**
- **width = 10 inches**
- **height = 12 inches**

**What is the volume of water in the tank when it is $\frac{4}{5}$ full?**

A 1,120 cu in.
B 1,920 cu in.
C 2,400 cu in.
D 3,000 cu in.

5.

**A right cone is placed on its circular base.**




**Which statement about the cone is *incorrect*?**

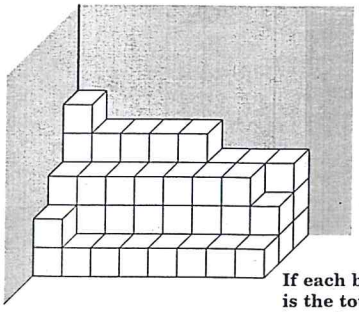
F The view from the front is a triangle.
G The view from the bottom is a circle.
H The view from the top is a circle.
J The view from the left is a rhombus.

6.

**To the nearest gallon, what is the volume of a cylindrical water heater 1.4 feet in diameter and 4 feet tall? (1 cubic foot = 7.48 gallons)**

F 34 gal
G 46 gal
H 59 gal
J 132 gal

7. **This drawing shows cubic boxes stacked in the corner of a warehouse.**

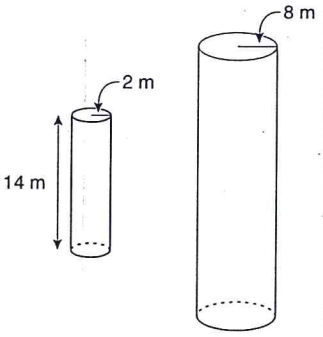


**If each box will hold 8 cubic feet, what is the total capacity of the stack of boxes?**

A 488 cubic feet
B 496 cubic feet
C 504 cubic feet
D 512 cubic feet

8.

**The cylinders shown are similar.**




**What is the volume of the larger cylinder?**

A $56\pi\ m^3$
B $224\pi\ m^3$
C $896\pi\ m^3$
D $3{,}584\pi\ m^3$

9.

A spherical paintball measures 1.5 centimeters in diameter. Approximately how much paint is in it?

A $1.77\ cm^3$
B $7.07\ cm^3$
C $9.42\ cm^3$
D $14.13\ cm^3$

10.

If a cube with side length 6 inches has its dimensions divided in half, what will be the volume of the new cube?

A 108 cubic inches
B 54 cubic inches
C 27 cubic inches
D 9 cubic inches

11.

The radius of Sphere $A$ is 2 inches, and the radius of Sphere $B$ is 4 inches. How many times larger is the volume of Sphere $B$ compared to the volume of Sphere $A$ ?

A 2
B 3
C 4
D 8

12.

The surface area of a plastic ball is $196\pi$. A sponge ball has a radius twice that of the plastic ball. What is the surface area of the sponge ball?

A $9{,}604\pi$
B $993\pi$
C $784\pi$
D $546\pi$

13.

A cone has a slant height of 10 centimeters and a lateral area of $60\pi$ square centimeters. What is the volume of a sphere with a radius equal to that of the cone?

A $102\pi\ cm^3$
B $144\pi\ cm^3$
C $288\pi\ cm^3$
D $1{,}333\pi\ cm^3$

14.

A swimming pool is being filled at the rate of 12 cubic yards per minute. If the pool is 18 yards long, 10 yards wide, and 3 yards deep, how many minutes will it take to fill the pool?

F 45 minutes
G 101 minutes
H 540 minutes
J 1,233 minutes

15.

Which is closest to the volume of a sphere with a radius equal to 8 centimeters?

F $267.9\ cm^3$
G $803.8\ cm^3$
H $1{,}607.7\ cm^3$
J $2{,}143.6\ cm^3$

16.

What is the total surface area of a rectangular prism box that measures 5 feet by 1 foot by 1 foot?

A 5 sq ft
B 20 sq ft
C 22 sq ft
D 30 sq ft

17.

Which is closest to the total surface area of a cylinder with a radius of 5 inches and a height that is equal to its diameter?

A 314 sq in.
B 471 sq in.
C 596 sq in.
D 785 sq in.

18.

A cylinder has a diameter of 10 inches and a height four times its radius. What is its volume?

F $500\pi$ cu in.
G $2{,}000\pi$ cu in.
H $4{,}000\pi$ cu in.
J $40{,}000\pi$ cu in.