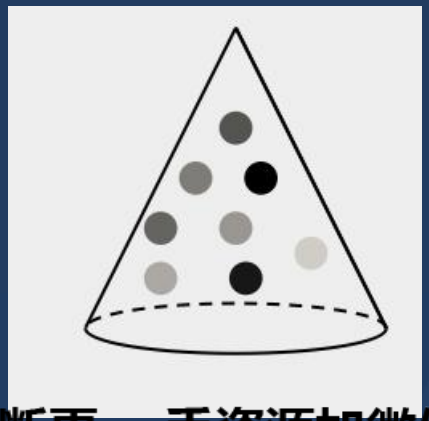
koolearn 新东方在线

Volume word problems

1.Cam is making a party hat, shown at left, in the shape of a cone for his birthday. The circumference of the part of his head where the hat will rest is 56 centimeters (cm). If the height of the hat is 25cm, what is the volume of Cam's hat, measured in cubic centimeters (cm^3)? Use $\pi \approx 3.14$.

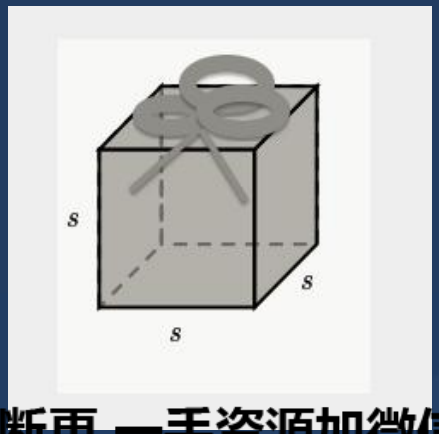
A. 233 cm^3
B. 2,081 cm^3
C. 16,354 cm^3
D. 20,515 cm^3



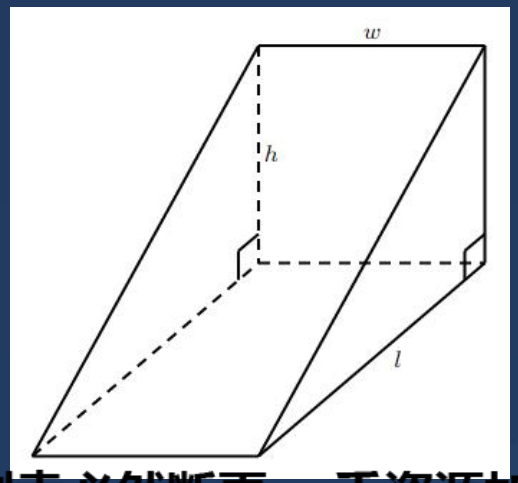
2.A household aquarium tank in the shape of a rectangular prism has a base length of 24 inches(in) and a base width of 15 in. The height of the water is 12 in above the base. During cleaning, 900 cubic inches of water is removed. What is the change in the height of the water in inches?

3.Sean has ordered a gift online and was told it will be delivered in a cube-shaped gift box with volume 8,000 cubic centimeters (cm3), shown at left. In order to purchase enough wrapping paper to cover the box, he must calculate its surface area. What is the surface area of the box, in square centimeters (cm2)?

A. 1,200 cm2
B. 1,600 cm2
C. 2,000 cm2
D. 2,400 cm2



4.A wooden door wedge has the shape of a right triangular prism as shown above. The right triangular faces have a length of l=10 centimeters (cm) and a height of h= 4cm. The prism has a width of w=3cm. What is the volume of the door wedge in cubic centimeters?

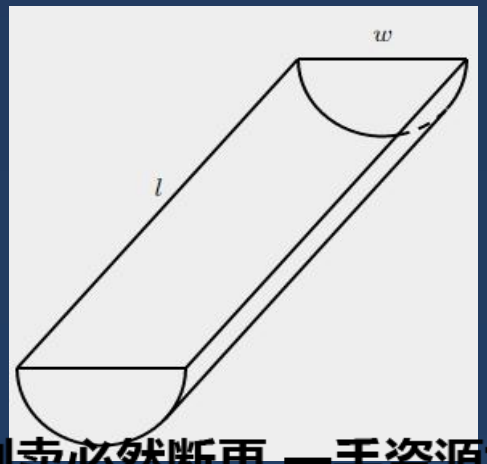


5.A cylinder and cone have equal volumes and radii of equal length. If the height of the cone is 24centimeters, then what is the height of the cylinder in centimeters?

6.A cube of gold with an edge length of 3 inches (in) is melted and reformed into a rectangular prism with a width of 2.5 in and a height of 2 in. If the volume is unchanged during melting, what is the length of the prism of gold in inches?

7.A trough shaped as half of a circular cylinder is being constructed as shown at left. It is able to hold 0.5 cubic meters (m3) of water. Additionally, its width, w, is 50 centimeters (cm). Approximating π as 3.14, what is the length of the trough, l, to the nearest tenth of a meter?

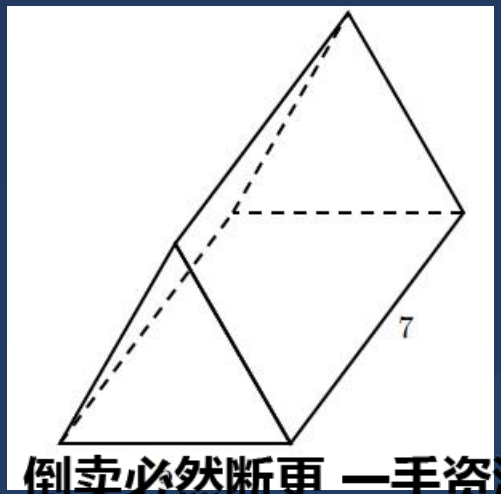
A. 1.3
B. 2.5
C. 5.1
D. 10.2



8.A cylindrical soda can has a volume of 108π cubic centimeters (cm3) and a height of 12cm. What is the surface area of the soda can in square centimeters?

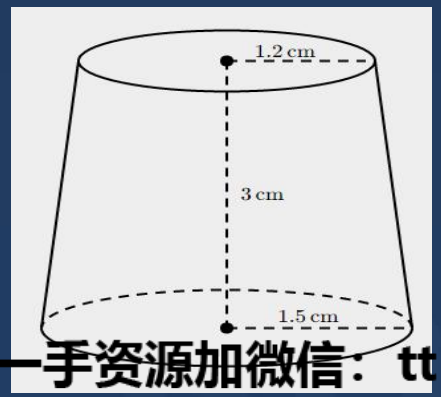
A. 18π
B. 36π
C. 72π
D. 90π

9.A right triangular prism with an equilateral triangular base is shown above. The height of the right triangular prism is equal to 7 feet (ft), and each side of the triangular base is equal to 5ft. What is the volume of the right triangular prism, rounded to the nearest cubic foot?



10.A rubber stopper used for plugging chemical flasks has the shape of a frustum as shown at left. The frustum is 3 centimeters (cm) high and was cut from the bottom 3cm of a cone with a height of 15cm and a base radius of 1.5cm. The radius of the top circular face of the rubber stopper is 1.2cm. What is the volume of the stopper in cubic centimeters (cm3)?

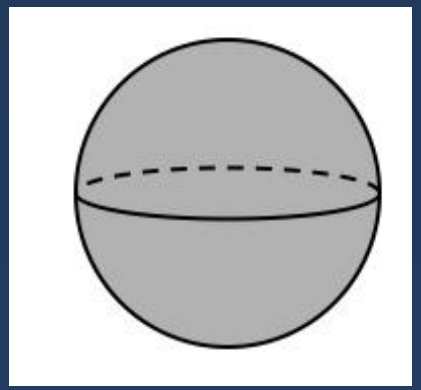
A. 2.25π
B. 5.4π
C. 5.49π
D. 6.3π



11.The shape of a solid wire can be approximated by a long cylinder with a base diameter, or wire thickness, of 1 centimeter. The wire is wound ten times into a circular loop of diameter 1 meter. What is the total volume of the wire in cubic centimeters?

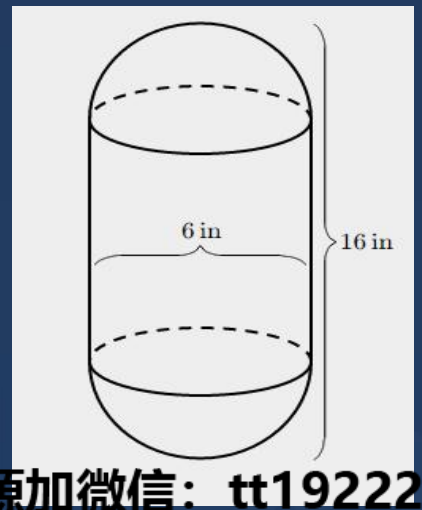
A. $25\pi^2$
B. $250\pi^2$
C. $500\pi^2$
D. $1{,}000\,\pi^2$

12.A large spherical balloon inflated with air is 60 centimeters (cm) in diameter. Approximately what volume of air, to the nearest cubic centimeter (cm3), is needed to increase the diameter of the balloon by 6cm? Use $\pi \approx 3.14$.



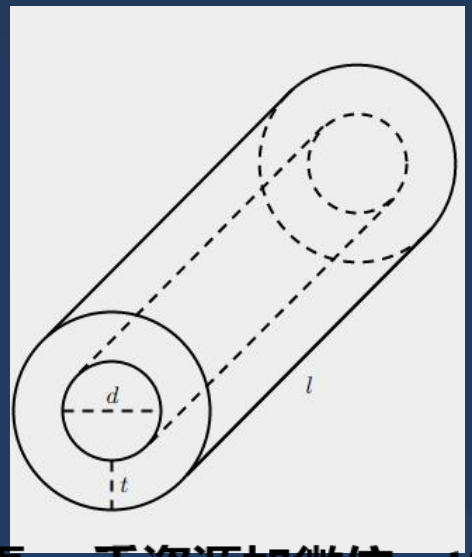
13.An oxygen tank is shaped like a cylinder with two hemispheres attached to the cylinder bases as shown at left. The diameter of the cylinder and hemispheres is 6 inches (in). The height of the entire tank is 16in. What is the volume of the oxygen tank in cubic inches?

A. 126π
B. 144π
C. 180π
D. 504π



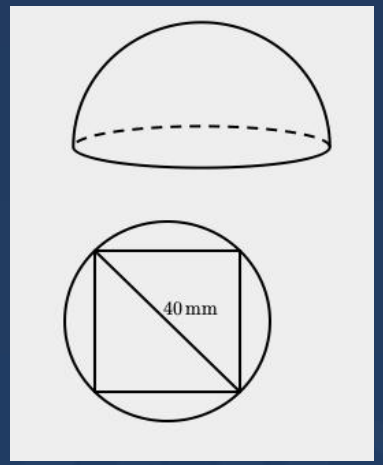
14.A metal pipe has the shape of a hollow cylinder as shown at left. The length of the pipe is l=30 centimeters (cm), the thickness of the pipe is t=1cm, and the internal diameter is d=4cm. What is the volume of the pipe material in cubic centimeters?

A. 120π
B. 150π
C. 270π
D. 600π



15.A gemstone, shown at left, is being carved in the shape of a right square pyramid from a hemispherical stone with diameter 40 millimeters (mm). The square base of the pyramid will be carved from the base of the hemisphere. The height of the pyramid will coincide with the radius of the hemisphere. What is the volume, in cubic millimeters (mm3), of the right square pyramid that can be carved from the hemisphere, as shown below?

A. 2,667 mm3
B. 5,333 mm3
C. 10,667 mm3
D. 16,746 mm3



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Thanks

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