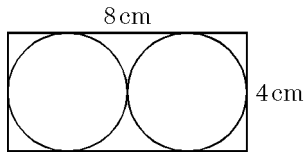


Surface Area and Volume Review

Name: _____

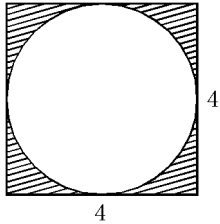
Date: _____

1. What is a reasonable estimate for circumference of one of the circles?



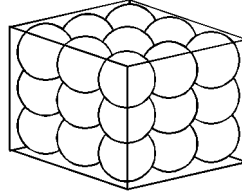
- A. less than 16 cm B. less than 12 cm
C. less than 26 cm D. less than 32 cm

2. Based on the diagram below, what is a reasonable estimate for the area of the shaded region?



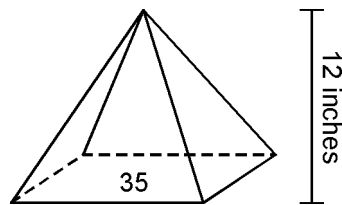
- A. less than 4 units² B. less than 6 units²
C. less than 7 units² D. less than 8 units²

3. The cube shown has sides of 18 cm. What is the best estimate for the volume of one layer of spheres?



- A. $\approx 110 \text{ cm}^3$ B. $\approx 1940 \text{ cm}^3$
C. $\approx 1020 \text{ cm}^3$ D. $\approx 220 \text{ cm}^3$

4. Steven purchased a box of chocolate shaped like the one shown in the diagram. The box is 12 inches tall and the area of the bottom of the box is 35 square inches. Which expression can be used to find how much chocolate the box holds?

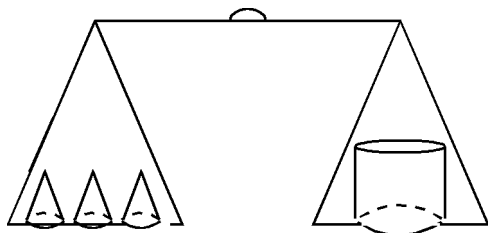


- A. 12×35 B. $35^2 \times 12$
C. $(35^2 \times 12) \div 3$ D. $12 \times 35 \times \frac{1}{3}$

5. A pyramid has a volume of 300 cm^3 . What would be the volume of a rectangular prism with the same base and height as the pyramid?

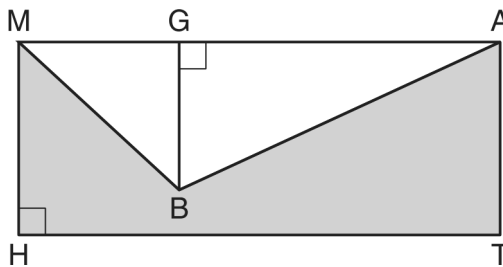
- A. 450 cm^3 B. 900 cm^3 C. 1500 cm^3
 D. cannot be determined

6. Three solid cones ($V = \frac{1}{3}(\text{Area of base} \times \text{height})$) are on one side of a balance. A solid cylinder ($V = \text{Area of Base} \times \text{height}$) is on the other side. All have the same radius and are made of the same material. The cones and the cylinder are the same height. Which side is heavier?



- A. The cylinder side is lighter.
 B. The cylinder side is slightly heavier.
 C. The cylinder side is much heavier.
 D. They are the same.

7. In the diagram below, $MATH$ is a rectangle, $GB = 4.6$, $MH = 6$, and $HT = 15$.



What is the area of polygon $MBATH$?

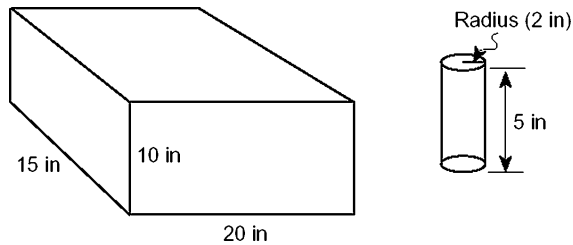
- A. 34.5 B. 55.5 C. 90.0 D. 124.5
8. What is the circumference of a circle whose radius is 6?
- A. 6π B. 12π C. 36π D. 3π
9. The area of a circle is 16π . What is the circumference of the circle?
- A. 8π B. 2π C. 16π D. 4π
10. What is the volume, in cubic centimeters, of a cube whose edge measures 2 centimeters?

11. 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?

12. A right circular cylinder has a base whose area is 12π . If the height of the cylinder is 6, the volume of the cylinder is

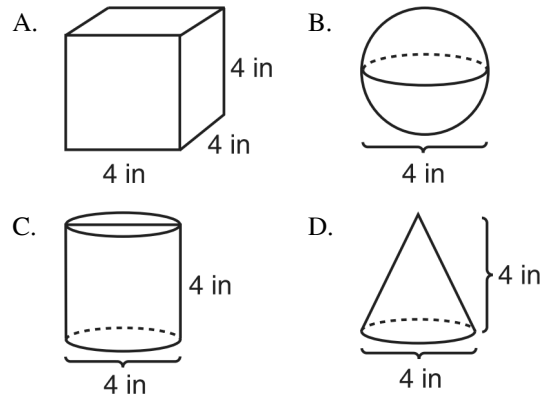
- A. 18π B. 24π C. 36π D. 72π

13. In the accompanying diagram, a rectangular container with the dimensions 10 inches by 15 inches by 20 inches is to be filled with water, using a cylindrical cup whose radius is 2 inches and whose height is 5 inches. What is the maximum number of full cups of water that can be placed into the container without the water overflowing the container?

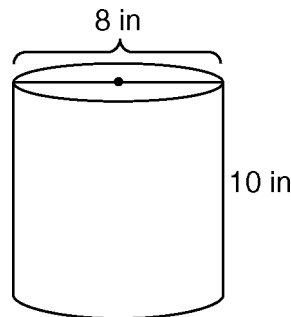


14. A fish tank with a rectangular base has a volume of 3,360 cubic inches. The length and width of the tank are 14 inches and 12 inches, respectively. Find the height, in inches, of the tank.

15. Which diagram represents the figure with the greatest volume?



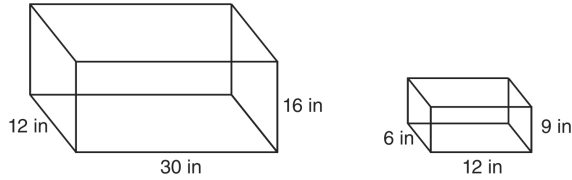
16. A storage container in the shape of a right circular cylinder is shown in the accompanying diagram.



What is the volume of this container, to the nearest hundredth?

- A. 56.55 in^3 B. 125.66 in^3
 C. 251.33 in^3 D. 502.65 in^3

17. The diagram below represents Joe's two fish tanks.

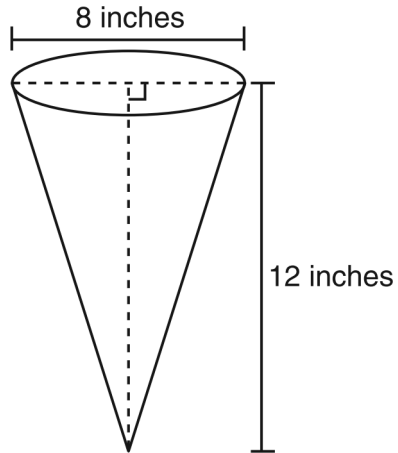


Joe's larger tank is completely filled with water. He takes water from it to completely fill the small tank. Determine how many cubic inches of water will remain in the larger tank.

18. The volume of a cylindrical can is 32π cubic inches. If the height of the can is 2 inches, what is its radius, in inches?

A. 8 B. 2 C. 16 D. 4

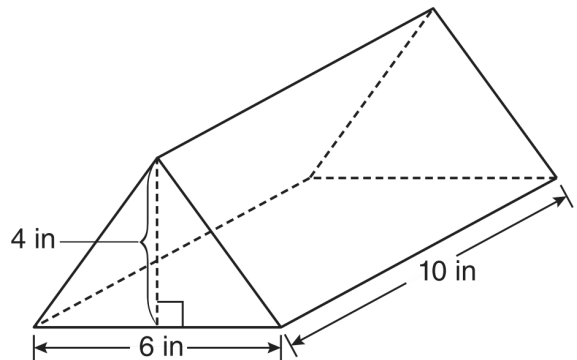
19. In the diagram below, a right circular cone has a diameter of 8 inches and a height of 12 inches.



What is the volume of the cone to the *nearest cubic inch*?

A. 201 B. 481 C. 603 D. 804

20. A packing carton in the shape of a triangular prism is shown in the diagram below.



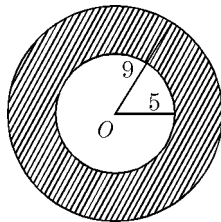
What is the surface area, in square inches, of this carton?

21. The volume of a sphere is approximately 44.6022 cubic centimeters. What is the radius of the sphere, to the *nearest tenth of a centimeter*?

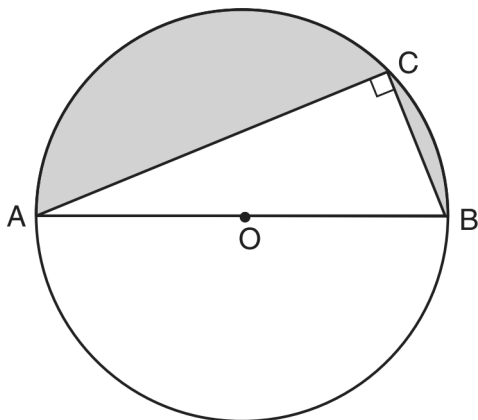
A. 2.2 B. 3.3 C. 4.4 D. 4.7

22. In the accompanying diagram, two concentric circles have radii of 9 and 5, respectively. In terms of π , the area of the shaded region is

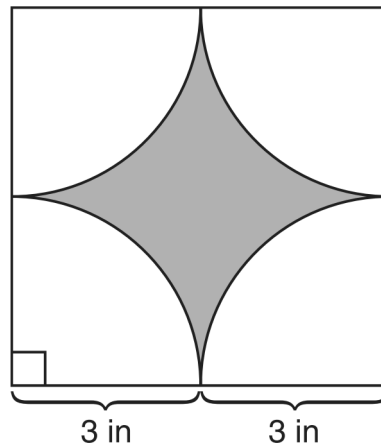
A. 56π B. 16π
C. 8π D. 4π



23. In the accompanying diagram, right triangle ABC is inscribed in circle O , diameter $AB = 26$, and $CB = 10$. Find, to the nearest square unit, the area of the shaded region.

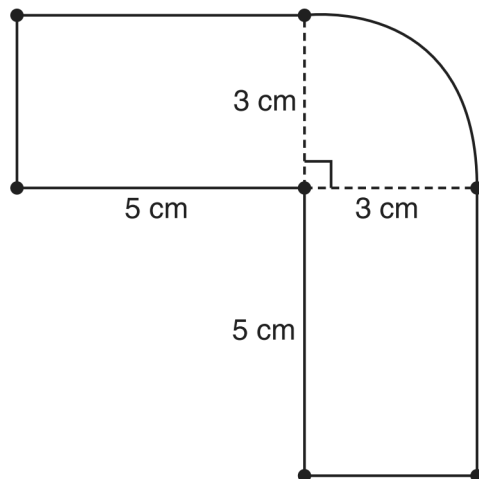


24. A designer created the logo shown below. The logo consists of a square and four quarter-circles of equal size.



Express, in terms of π , the exact area, in square inches, of the shaded region.

25. The figure shown below is composed of two rectangles and a quarter circle.

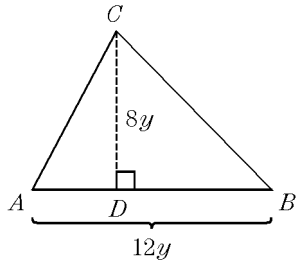


What is the area of this figure, to the *nearest square centimeter*?

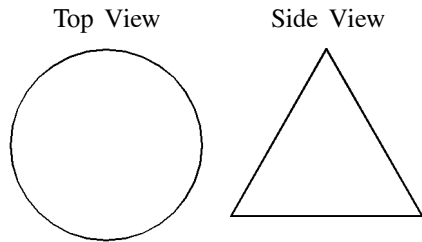
A. 33 B. 37 C. 44 D. 58

26. In the accompanying diagram of $\triangle ABC$, $\overline{CD} \perp \overline{AB}$, $AB = 12y$, and $CD = 8y$. The area of $\triangle ABC$ can be expressed as

- A. $96y^2$
 B. $48y^2$
 C. $24y^2$
 D. $20y^2$



27. What is the 3-dimensional figure shown?



- A. cylinder B. cone
 C. triangular pyramid D. triangular prism

28. Cutting a cone _____ gives a cross section of a circle.

- A. parallel to its side
 B. parallel to its base
 C. perpendicular to its base
 D. none of these

29. A candy bar in the shape of a rectangular pyramid is cut into pieces. Which of the following shapes could not be formed from slicing this candy bar?

- A. equilateral triangle B. rectangle
 C. isosceles triangle D. circle

30. If the length of a rectangle is tripled and the width remains the same, what will be the effect on its area?

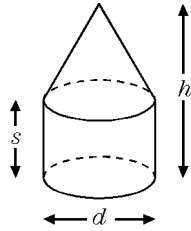
- A. The area will remain the same.
 B. The area will triple.
 C. The area will be 9 times as great.
 D. The area will be 6 times as great.

31. Triangle R has a base that is four times as long as triangle S and a height that is two times as long as triangle S. This means that the area of triangle R is _____ times the area of triangle S.

- A. 5 B. 8 C. 9 D. 10

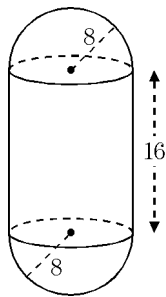
32. Find the volume, in cubic centimeters, of the solid shown where $h = 14$ cm, $s = 7$ cm, and $d = 10$ cm. (Round to two decimal places.)

- A. 586.43 cm^3
 B. 733.04 cm^3
 C. 916.30 cm^3
 D. 2932.15 cm^3

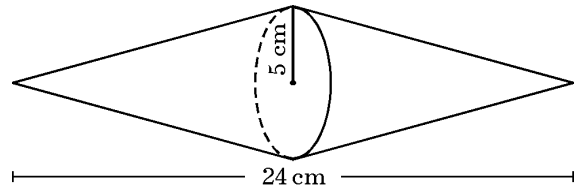


33. The solid shown is constructed from a cylinder and two hemispheres with dimensions as shown. Find the volume of this solid to the nearest cubic unit.

- A. 603 units^3
 B. 3315 units^3
 C. 4213 units^3
 D. 5362 units^3



34. A sculpture is made with two identical, opposite-facing right circular cones. The cones share the same base, as shown in the figure.



If the radius of the base is 5 cm and the total length of the object is 24 cm, what is the volume of the sculpture?

- A. 628 cm^2 B. 1256 cm^2
 C. 2512 cm^2 D. 3768 cm^2

Surface Area and Volume Review 11/5/2018

1.
Answer: A
Objective: [G.GMD.1]
2.
Answer: A
Objective: [G.GMD.1]
3.
Answer: B
Objective: [G.GMD.2]
4.
Answer: D
Objective: [G.GMD.3]
5.
Answer: B
Objective: [G.GMD.3]
6.
Answer: D
Objective: [G.GMD.3]
7.
Answer: B
8.
Answer: B
9.
Answer: A
10.
Answer: 8
11.
Answer: 4
12.
Answer: D
13.
Answer: 47
14.
Answer: 20
15.
Answer: A
16.
Answer: D
17.
Answer: 5, 112

18.
Answer: D
19.
Answer: A
20.
Answer:
21.
Answer: A
22.
Answer: A
23.
Answer: 145
24.
Answer: $36 - 9\pi$
25.
Answer: B
26.
Answer: B
27.
Answer: B
Objective: [G.10A]
28.
Answer: B
Objective: [G.10A]
29.
Answer: D
Objective: [G.10A]
30.
Answer: B
Objective: [G.10B]
31.
Answer: B
Objective: [G.10B]
32.
Answer: B
Objective: [G.11D]
33.
Answer: D
Objective: [G.11D]
34.
Answer: B
Objective: [G.11D]