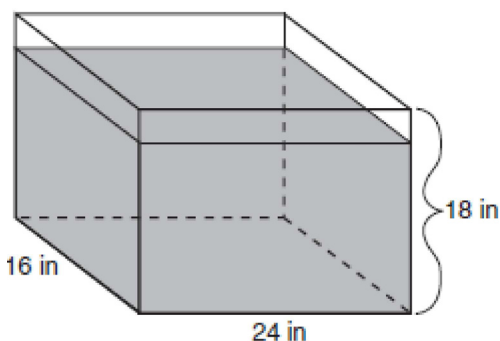


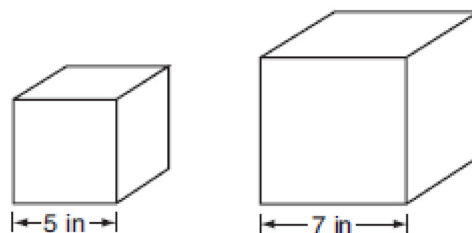
**A.G.2: Volume 2: Use formulas to calculate volume and surface area of rectangular solids and cylinders**

- 1 A block of wood is 5 inches long, 2 inches wide, and 3 inches high. What is the volume of this block of wood?  
1)  $10 \text{ in}^3$  2)  $25 \text{ in}^3$  3)  $30 \text{ in}^3$  4)  $38 \text{ in}^3$
- 2 If the length of a side of a cube is  $7x$ , which expression represents the cube's volume?  
1)  $7x^3$  2)  $49x^3$  3)  $343x$  4)  $343x^3$
- 3 A cardboard box has length  $x - 2$ , width  $x + 1$ , and height  $2x$ .  
a Write an expression, in terms of  $x$ , to represent the volume of the box.  
b If  $x = 8$  centimeters, what is the number of cubic centimeters in the volume of the box?
- 4 Tina's preschool has a set of cardboard building blocks, each of which measures 9 inches by 9 inches by 4 inches. How many of these blocks will Tina need to build a wall 4 inches thick, 3 feet high, and 12 feet long?
- 5 As shown in the accompanying diagram, the length, width, and height of Richard's fish tank are 24 inches, 16 inches, and 18 inches, respectively. Richard is filling his fish tank with water from a hose at the rate of 500 cubic inches per minute. How long will it take, to the *nearest minute*, to fill the tank to a depth of 15 inches?

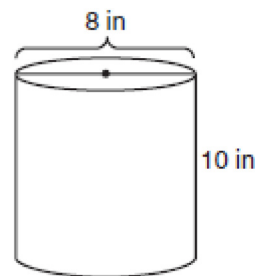


(Not drawn to scale)

- 6 Tracey has two empty cube-shaped containers with sides of 5 inches and 7 inches, as shown in the accompanying diagram. She fills the smaller container completely with water and then pours all the water from the smaller container into the larger container. How deep, to the *nearest tenth of an inch*, will the water be in the larger container?



- 7 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*?

- 1)  $56.55 \text{ in}^3$  2)  $125.66 \text{ in}^3$  3)  $251.33 \text{ in}^3$
- 4)  $502.65 \text{ in}^3$

## A.G.2: Volume 2: Use formulas to calculate volume and surface area of rectangular solids and cylinders

### Answer Section

1 ANS: 3  
 $5 \times 2 \times 3 = 30$

REF: 010802a

2 ANS: 4  
 $(7x)^3 = 343x^3$

REF: 060830a

3 ANS:  
 $V = (x - 2)(x + 1)(2x)$ , 864.  $(8 - 2)(8 + 1)(2(8)) = 864$

REF: 010123a

4 ANS:  
 64. The wall in common dimensions is 4 by 36 by 144 inches, with a volume of 20736 cubic inches. The volume of a block is 324 cubic inches.  $\frac{4 \times 36 \times 144}{9 \times 9 \times 4} = 64$

REF: 060327a

5 ANS:  
 12.  $\frac{24 \times 16 \times 15}{500} \approx 12$

REF: 010537a

6 ANS:  
 2.6. If Tracey fills the smaller container, it will contain  $5^3 = 125$  cubic inches of water.  $lwh = 125$   
 $7 \cdot 7 \cdot h = 125$   
 $h \approx 2.6$

REF: 060737a

7 ANS: 4  
 $V = \pi r^2 h = \pi 4^2 \cdot 10 \approx 502.65$

REF: 060530a