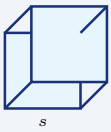
Cubes

Name: _____	Date: _____	Score: _____ / 18

Quick Review and Helpful Hints

A cube has all edges the same length s. Its *volume* is $V = s^3$ (edge cubed), and its *surface area* is $SA = 6s^2$ (six identical square faces). Use cubic units for volume and square units for surface area.

▷ **Example:** Find the volume of a cube with edge 4 cm.
Work: Volume is the edge cubed: $V = s^3 = 4^3 = 4 \times 4 \times 4$.
★ **Answer:** 64 cm^3



$V = s^3, \quad SA = 6s^2.$

Practice Problems

Use each cube diagram to find the volume or surface area, as directed.

1. Find the volume.

2. Find the volume.

3. Find the volume.

4. Find the volume.

5. Find the volume.

6. Find the surface area.

7. Find the surface area.

8. Find the surface area.

9. Find the surface area.

10. Find the volume.

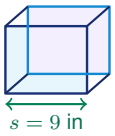
11. Find the volume.

12. Find the surface area.

13. Find the volume.

14. Find the surface area.

Word Problems

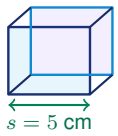


15. A classroom storage bin is a cube with inside edges of 9 inches. How many cubic inches of supplies can it hold?

Formula to use: $V = s^3$

Work: _____

_____

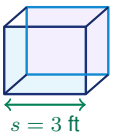


16. A gift shop wraps a cube-shaped box with 5-cm edges. Ignoring overlap, how many square centimeters of paper are needed?

Formula to use: $SA = 6s^2$

Work: _____

_____

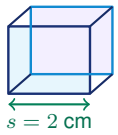


17. A small cube aquarium has inside edges of 3 feet. How many cubic feet of water fit when it is filled to the top?

Formula to use: $V = s^3$

Work: _____

_____



18. A game designer paints every face of a cube die with edge length 2 cm. How many square centimeters are painted?

Formula to use: $SA = 6s^2$

Work: _____

_____

Answer Keys

1. $\boxed{8}$	**7.** $\boxed{54}$	**13.** $\boxed{512}$
2. $\boxed{27}$	**8.** $\boxed{150}$	**14.** $\boxed{600}$
3. $\boxed{125}$	**9.** $\boxed{96}$	**15.** $\boxed{729\ \text{in}^3}$
4. $\boxed{216}$	**10.** $\boxed{1}$	**16.** $\boxed{150\ \text{cm}^2}$
5. $\boxed{1000}$	**11.** $\boxed{343}$	**17.** $\boxed{27\ \text{ft}^3}$
6. $\boxed{24}$	**12.** $\boxed{216}$	**18.** $\boxed{24\ \text{cm}^2}$

Step-by-Step Explanations

1. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The volume of a cube is the edge cubed: $2^3 = 8$. So the final answer is 8.

2. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $3^3 = 27$. So the final answer is 27.

3. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $5^3 = 125$. So the final answer is 125.

4. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $6^3 = 216$. So the final answer is 216.

5. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $10^3 = 1000$. So the final answer is 1000.

6. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Surface area is 6 times one square face: $6(2^2) = 6(4) = 24$. So the final answer is 24.

7. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $6(3^2) = 6(9) = 54$. So the final answer is 54.

8. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $6(5^2) = 6(25) = 150$. So the final answer is 150.

9. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $6(4^2) = 6(16) = 96$. So the final answer is 96.

10. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $1^3 = 1$ – a single unit cube. So the final answer is 1.

11. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $7^3 = 343$. So the final answer is 343.

12. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $6(6^2) = 6(36) = 216$. So the final answer is 216.

13. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $8^3 = 512$. So the final answer is 512.

14. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $6(10^2) = 6(100) = 600$. So the final answer is 600.

15. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Volume $= 9^3 = 729$ cubic inches. So the final answer is 729 in^3.

16. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Wrapping paper covers the surface: $6(5^2) = 150$ square cm. So the final answer is 150 cm^2.

17. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Volume $= 3^3 = 27$ cubic feet. So the final answer is 27 ft^3.

18. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Surface area $= 6(2^2) = 24$ square cm. So the final answer is 24 cm^2.

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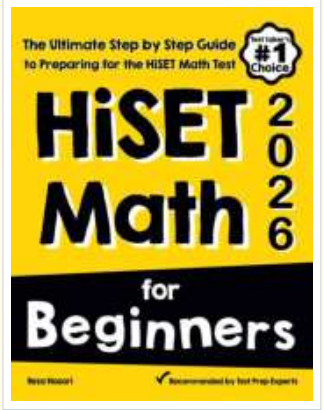

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