

# Surface Area of Solids

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Score: \_\_\_\_\_ / 30

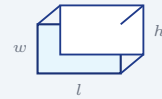
## Quick Review and Helpful Hints

Surface area is the total area of all the faces of a solid. For a rectangular box:  $SA = 2(lw + lh + wh)$ . For a cube:  $SA = 6s^2$ . Add up every face; the answer is in square units.

▶ **Example:** Find the surface area of a cube with side 3.

**Work:**  $SA = 6s^2 = 6(3^2) = 6(9)$ .

★ **Answer:** 54



$SA = 2(lw + lh + wh)$ .

### Practice Problems

Find each surface area.

- |                               |       |                                 |       |
|-------------------------------|-------|---------------------------------|-------|
| 1. Cube, $s = 2$              | _____ | 8. Box, $l = 5, w = 2, h = 3$   | _____ |
| 2. Cube, $s = 4$              | _____ | 9. Box, $l = 4, w = 4, h = 2$   | _____ |
| 3. Cube, $s = 5$              | _____ | 10. Cube, $s = 6$               | _____ |
| 4. Cube, $s = 1$              | _____ | 11. Box, $l = 3, w = 3, h = 3$  | _____ |
| 5. Box, $l = 2, w = 3, h = 4$ | _____ | 12. Box, $l = 6, w = 1, h = 2$  | _____ |
| 6. Box, $l = 1, w = 1, h = 1$ | _____ | 13. Cube, $s = 7$               | _____ |
| 7. Cube, $s = 10$             | _____ | 14. Box, $l = 10, w = 2, h = 1$ | _____ |

### Word Problems

15. A cube-shaped box has side 5 in. Find its surface area. \_\_\_\_\_
16. A box is  $4 \times 3 \times 2$ . Find its surface area. \_\_\_\_\_
17. A cube has side 8 cm. Find its surface area. \_\_\_\_\_
18. A gift box is  $6 \times 2 \times 2$ . Find its surface area. \_\_\_\_\_



◆ **Illustrated Practice**

Use each picture. Find the total outside area of the solid.



19. Find the surface area of the cube. \_\_\_\_\_



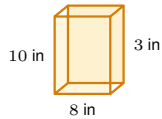
25. Find the surface area of the prism. \_\_\_\_\_



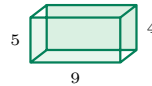
20. Find the surface area of the box. \_\_\_\_\_



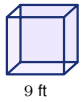
26. Find the surface area. \_\_\_\_\_



21. Find the surface area of the cereal box. \_\_\_\_\_



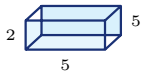
27. Find the surface area of the carton. \_\_\_\_\_



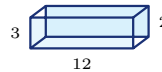
22. Find the surface area of the cube. \_\_\_\_\_



28. Find the surface area of the cube. \_\_\_\_\_



23. Find the wrapping area. \_\_\_\_\_



29. Find the surface area. \_\_\_\_\_



24. Find the painted area of the cube. \_\_\_\_\_



30. Find the surface area of the cube. \_\_\_\_\_



## Answer Keys

1.  $\boxed{24}$

2.  $\boxed{96}$

3.  $\boxed{150}$

4.  $\boxed{6}$

5.  $\boxed{52}$

6.  $\boxed{6}$

7.  $\boxed{600}$

8.  $\boxed{62}$

9.  $\boxed{64}$

10.  $\boxed{216}$

11.  $\boxed{54}$

12.  $\boxed{40}$

13.  $\boxed{294}$

14.  $\boxed{64}$

15.  $\boxed{150 \text{ in}^2}$

16.  $\boxed{52}$

17.  $\boxed{384 \text{ cm}^2}$

18.  $\boxed{56}$

19.  $\boxed{96 \text{ in}^2}$

20.  $\boxed{108 \text{ cm}^2}$

21.  $\boxed{268 \text{ in}^2}$

22.  $\boxed{486 \text{ ft}^2}$

23.  $\boxed{90}$

24.  $\boxed{864 \text{ cm}^2}$

25.  $\boxed{248}$

26.  $\boxed{64}$

27.  $\boxed{202}$

28.  $\boxed{54}$

29.  $\boxed{132}$

30.  $\boxed{216}$

### Step-by-Step Explanations

1. Start by naming the process: Choose the surface-area formula for the solid, substitute the given dimensions, and simplify the arithmetic. The setup/work is  $6s^2 = 6(4) = 24$ . So the final answer is 24.

2. A good way to think about this is: Choose the surface-area formula for the solid, substitute the given dimensions, and simplify the arithmetic. The setup/work is  $6(16) = 96$ . So the final answer is 96.

3. Step by step: Choose the surface-area formula for the solid, substitute the given dimensions, and simplify the arithmetic. The setup/work is  $6(25) = 150$ . So the final answer is 150.

4. Take it one move at a time: Choose the surface-area formula for the solid, substitute the given dimensions, and simplify the arithmetic. The setup/work is  $6(1) = 6$ . So the final answer is 6.

5. Start by naming the process: Choose the surface-area formula for the solid, substitute the given dimensions, and simplify the arithmetic. The setup/work is  $2(lw + lh + wh) = 2(6 + 8 + 12) = 2(26) = 52$ . So the final answer is 52.

6. A good way to think about this is: Choose the surface-area formula for the solid, substitute the given dimensions, and simplify the arithmetic. The setup/work is  $6(1) = 6$ . So the final answer is 6.

7. Step by step: Choose the surface-area formula for the solid, substitute the given dimensions, and simplify the arithmetic. The setup/work is  $6(100) = 600$ . So the final answer is 600.

8. Take it one move at a time: Choose the surface-area formula for the solid, substitute the given dimensions, and simplify the arithmetic. The setup/work is  $2(10 + 15 + 6) = 2(31) = 62$ . So the final answer is 62.

9. Start by naming the process: Choose the surface-area formula for the solid, substitute the given dimensions, and simplify the arithmetic. The setup/work is  $2(16 + 8 + 8) = 2(32) = 64$ . So the final answer is 64.

10. A good way to think about this is: Choose the surface-area formula for the solid, substitute the given dimensions, and simplify the arithmetic. The setup/work is  $6(36) = 216$ . So the final answer is 216.

11. Step by step: Choose the surface-area formula for the solid, substitute the given dimensions, and simplify the arithmetic. The setup/work is  $6(9) = 54$ . So the final answer is 54.

12. Take it one move at a time: Choose the surface-area formula for the solid, substitute the given dimensions, and simplify the arithmetic. The setup/work is  $2(6 + 12 + 2) = 2(20) = 40$ . So the final answer is 40.

13. Start by naming the process: Choose the surface-area formula for the solid, substitute the given dimensions, and simplify the arithmetic. The setup/work is  $6(49) = 294$ . So the final answer is 294.

14. A good way to think about this is: Choose the surface-area formula for the solid, substitute the given dimensions, and simplify the arithmetic. The setup/work is  $2(20 + 10 + 2) = 2(32) = 64$ . So the final answer is 64.

15. Step by step: Choose the surface-area formula for the solid, substitute the given dimensions, and simplify the arithmetic. The setup/work is  $6(25) = 150 \text{ in}^2$ . So the final answer is 150  $\text{in}^2$ .

16. Take it one move at a time: Choose the surface-area formula for the solid, substitute the given dimensions, and simplify the arithmetic. The setup/work is  $2(12 + 8 + 6) = 2(26) = 52$ . So the final answer is 52.

17. Start by naming the process: Choose the surface-area formula for the solid, substitute the given dimensions, and simplify the arithmetic. The setup/work is  $6(64) = 384 \text{ cm}^2$ . So the final answer is 384  $\text{cm}^2$ .

18. A good way to think about this is: Choose the surface-area formula for the solid, substitute the given dimensions, and simplify the arithmetic. The setup/work is  $2(12 + 12 + 4) = 2(28) = 56$ . So the final answer is 56.

19. The picture shows a cube, so all 6 faces are the same square. Each face is  $4 \cdot 4 = 16 \text{ in}^2$ , and  $6 \cdot 16 = 96 \text{ in}^2$ .

20. For a rectangular box, add the three different face areas and double them:  $6 \cdot 4 = 24$ ,  $6 \cdot 3 = 18$ , and  $4 \cdot 3 = 12$ . Then  $2(24 + 18 + 12) = 108 \text{ cm}^2$ .

21. Use  $SA = 2(lw + lh + wh)$  with 8, 10, and 3. The face areas are 80, 24, and 30, so  $2(80 + 24 + 30) = 268 \text{ in}^2$ .

22. A cube has 6 matching square faces. One face is  $9 \cdot 9 = 81 \text{ ft}^2$ , so the whole surface area is  $6 \cdot 81 = 486 \text{ ft}^2$ .

23. The gift box is a rectangular prism with dimensions 5, 2, and 5. Add the three different face areas,  $10 + 25 + 10 = 45$ , then double because each has a matching opposite face:  $2 \cdot 45 = 90$ .

24. This is another cube. One face is  $12 \cdot 12 = 144 \text{ cm}^2$ , and there are 6 faces, so  $6 \cdot 144 = 864 \text{ cm}^2$ .

25. Use the rectangular-prism surface-area formula. The three different face areas are  $10 \cdot 6 = 60$ ,  $10 \cdot 4 = 40$ , and  $6 \cdot 4 = 24$ ; doubling their sum gives  $2(60 + 40 + 24) = 248$ .

26. The prism has dimensions 7, 2, and 2. The face areas are 14, 14, and 4, so the total outside area is  $2(14 + 14 + 4) = 64$ .

27. For the carton, multiply each pair of dimensions:  $9 \cdot 5 = 45$ ,  $9 \cdot 4 = 36$ , and  $5 \cdot 4 = 20$ . Double the sum:  $2(45 + 36 + 20) = 202$ .

28. The cube has side length 3. Each face is  $3 \cdot 3 = 9$ , and 6 matching faces make  $6 \cdot 9 = 54$ .

29. The prism dimensions are 12, 3, and 2. The three face areas are 36, 24, and 6, so  $2(36 + 24 + 6) = 132$ .

30. This is a cube with side length 6. One square face is  $6 \cdot 6 = 36$ , and  $6 \cdot 36 = 216$  for all six faces.



## Want Even More PERT Math Practice?



### The Most Comprehensive PERT Math Preparation Bundle

Prep books, workbooks, and full-length practice tests  
Complete review, detailed explanations, and realistic test practice

**Prep Books  
Workbooks  
Practice Tests**



**Important:** These PERT Math resources are made for extra practice after the worksheet. Scan the QR code above for the complete PERT Math preparation bundle.

#### Skill Review

- ✓ Builds number sense, algebra, geometry, and data skills
- ✓ Supports steady review before the PERT test
- ✓ Great for tutoring, homework, and independent practice

**Build the foundation.**

#### Test Practice

- ✓ Full-length practice tests for realistic pacing
- ✓ Detailed answer explanations for every question
- ✓ Useful after students finish topic worksheets

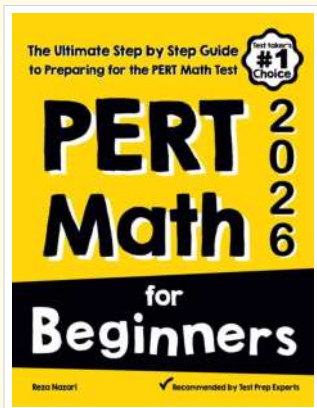
**Practice with purpose.**

#### Confidence

- ✓ Turns mistakes into targeted review
- ✓ Helps students see progress over time
- ✓ Keeps PERT preparation organized and calm

**Move forward prepared.**

### STUDENT FAVORITE • Master PERT Math From the Ground Up



#### PERT Math for Beginners

*The Ultimate Step-by-Step Guide to Preparing for the PERT Math Test*

Written by a top math teacher and aligned with the latest PERT Math test. From fractions and percents to algebra and geometry — explained the easy way.

- ✓ **Complete coverage** of every PERT Math topic — perfect companion to these worksheets
- ✓ **Step-by-step explanations** with worked examples on every topic
- ✓ **QR codes in every chapter** for free video lessons & bonus practice
- ✓ **2 full-length practice tests** with detailed answer keys
- ✓ Perfect for self-study or the classroom

**\* STUDENT'S #1 CHOICE**

Teacher-recommended • trusted PERT prep

→ **DOWNLOAD INSTANTLY**



Instant download • any device

□ **FIND ON AMAZON**



Paperback on Amazon

Pair these free worksheets with *PERT Math for Beginners* and you have a complete self-paced PERT Math path — concept lessons, daily practice, and full exam-style reviews. → [EffortlessMath.com](https://EffortlessMath.com)