Surface Area of Spheres

Name: _____	Date: _____	Score: _____ / 24

Quick Review

A **sphere** is a perfectly round solid — every point on its surface is the same distance, the **radius** r, from the center. The **surface area** of a sphere is $SA = 4\pi r^2$. A handy way to remember it: a sphere's surface area is exactly four times the area of a flat circle with the same radius. If you're given the *diameter*, cut it in half first to get the radius. Keep π in your answer unless you're told to use $\pi \approx 3.14$, and remember surface area uses *square* units.

◇ **Example:** Find the surface area of a sphere with radius 5 cm. Leave your answer in terms of π.
⇒ The surface area formula for a sphere is $SA = 4\pi r^2$. Here the radius is 5, so first square it: $5^2 = 25$. Then multiply by 4: $4 \times 25 = 100$. So the surface area is 100π square centimeters. Leaving the π gives the exact value.

Answer: $SA = 100\pi$ cm^2

PRACTICE

Find the surface area of each sphere. Leave π in unless noted.

1. Sphere: $r = 3$ _____
2. Sphere: $r = 5$ _____
3. Sphere: $r = 7$ _____
4. Sphere: $r = 10$ _____
5. Sphere: $r = 2$ _____
6. Sphere: $r = 6$ _____
7. Sphere: $r = 1$ _____
8. Sphere: $r = 4$ _____
9. Sphere: $r = 8$ _____
10. Sphere: $r = 9$ _____
11. Sphere: $r = 12$ _____
12. Sphere: $d = 6$ _____
13. Sphere: $d = 10$ _____
14. Sphere: $d = 14$ _____
15. Sphere: $d = 20$ _____
16. Sphere: $d = 4$ _____
17. Sphere: $r = 11$ _____
18. Sphere: $r = 15$ _____
19. Sphere: $r = 5$, use $\pi \approx 3.14$ _____
20. Sphere: $r = 10$, use $\pi \approx 3.14$ _____

♦ Word Problems

21. A globe has a radius of 7 inches. What is its surface area? Leave your answer in terms of π. _____

22. A spherical balloon has a diameter of 10 cm. Find the surface area of the balloon in terms of π. _____

23. A spherical water tank has a radius of 5 m. Using $\pi \approx 3.14$, how many square meters of paint are needed to coat its outside surface? _____

24. A sphere has radius 3 m and another sphere has radius 6 m. How many times larger is the surface area of the bigger sphere?

_____

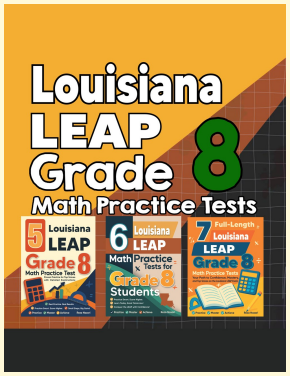
Answer Keys

1. 36π	**13.** 100π
2. 100π	**14.** 196π
3. 196π	**15.** 400π
4. 400π	**16.** 16π
5. 16π	**17.** 484π
6. 144π	**18.** 900π
7. 4π	**19.** 314
8. 64π	**20.** 1256
9. 256π	**21.** 196π in^2
10. 324π	**22.** 100π cm^2
11. 576π	**23.** 314 m^2
12. 36π	**24.** 4 times larger

Step-by-Step Explanations

1. $SA = 4\pi r^2 = 4\pi(9) = 36\pi$.
2. $SA = 4\pi(25) = 100\pi$.
3. $SA = 4\pi(49) = 196\pi$.
4. $SA = 4\pi(100) = 400\pi$.
5. $SA = 4\pi(4) = 16\pi$.
6. $SA = 4\pi(36) = 144\pi$.
7. $SA = 4\pi(1) = 4\pi$.
8. $SA = 4\pi(16) = 64\pi$.
9. $SA = 4\pi(64) = 256\pi$.
10. $SA = 4\pi(81) = 324\pi$.
11. $SA = 4\pi(144) = 576\pi$.
12. Radius is 3, so $SA = 4\pi(9) = 36\pi$.
13. Radius is 5, so $SA = 4\pi(25) = 100\pi$.
14. Radius is 7, so $SA = 4\pi(49) = 196\pi$.
15. Radius is 10, so $SA = 4\pi(100) = 400\pi$.
16. Radius is 2, so $SA = 4\pi(4) = 16\pi$.
17. $SA = 4\pi(121) = 484\pi$.
18. $SA = 4\pi(225) = 900\pi$.
19. $SA = 4(3.14)(25) = 314$.
20. $SA = 4(3.14)(100) = 1256$.
21. Use $SA = 4\pi r^2 = 4\pi(7^2) = 4\pi(49) = 196\pi$ square inches.
22. The radius is half the diameter: $r = 5$ cm. Then $SA = 4\pi(5^2) = 4\pi(25) = 100\pi$ square centimeters.
23. $SA = 4\pi r^2 \approx 4(3.14)(5^2) = 4(3.14)(25) = 314$ square meters.
24. Small sphere: $SA = 4\pi(9) = 36\pi$. Big sphere: $SA = 4\pi(36) = 144\pi$. The ratio is $144\pi \div 36\pi = 4$, so it is 4 times larger.

Want Even More Practice? Check Out Our Other Louisiana LEAP Test Books!



Louisiana LEAP Grade 8 Math Preparation Bundle

18 full-length practice tests across three books
(5 + 6 + 7)
No repeated questions—maximum practice value!

18 Tests!
3 Books
One Bundle

Important: All our test books contain **unique, completely different tests** from each other! Each book offers fresh practice questions—no repeats!

5 Practice Tests

- ✓ 5 complete practice tests with detailed explanations
- ✓ Perfect foundation for LEAP test preparation
- ✓ Builds confidence and test-taking skills
- ✓ High-quality questions aligned with state standards

Start your practice journey!

6 Practice Tests

- ✓ 6 complete practice tests with detailed explanations
- ✓ **Unique tests**—different from the 5 tests book
- ✓ Perfect for more practice after mastering 5 tests
- ✓ Builds even more confidence and test-taking skills
- ✓ Same high-quality questions aligned with standards

Take your practice to the next level!

7 Practice Tests

- ✓ 7 complete practice tests for maximum preparation
- ✓ **Unique tests**—different from 5 and 6 tests books
- ✓ The most comprehensive practice for Grade 8
- ✓ Ideal for students aiming for top scores
- ✓ Extensive practice builds mastery and confidence

Go all the way with comprehensive practice!