

Cube & Square Roots Worksheet

What Is a Square Root?

A **square root** of a number is a value that, when **multiplied by itself**, equals the original number. In other words:

If $a \times a = b$ or $a^2 = b$, then a is the square root of b .

Tip for Finding Square Roots - - Ask yourself:

"What number multiplied by itself equals the number inside the square root?"

Example 1

What is $\sqrt{25}$? →

Think:

- $1 \times 1 = 1$
- $2 \times 2 = 4$
- $3 \times 3 = 9$
- $4 \times 4 = 16$
- $5 \times 5 = 25 \checkmark$

Therefore: $\sqrt{25} = 5$

What Is a Cube Root?

A **cube root** of a number is a value that, when multiplied by itself **three times**, equals the original number. In other words:

If $a \times a \times a = b$ or $a^3 = b$, then a is the cube root of b .

Example 1

What is $\sqrt[3]{27}$? →

Think:

- $3 \times 3 \times 3 = 27 \checkmark$

Therefore: $\sqrt[3]{27} = 3$

Directions: Find the square root or cube root of each number. Show your work when needed.

Part A: Square Roots: Find each square root.

- | | | |
|-------------------------|-------------------------|--------------------------|
| 1. $\sqrt{25} =$ _____ | 5. $\sqrt{121} =$ _____ | 9. $\sqrt{225} =$ _____ |
| 2. $\sqrt{64} =$ _____ | 6. $\sqrt{144} =$ _____ | 10. $\sqrt{400} =$ _____ |
| 3. $\sqrt{81} =$ _____ | 7. $\sqrt{169} =$ _____ | |
| 4. $\sqrt{100} =$ _____ | 8. $\sqrt{196} =$ _____ | |

Part B: Cube Roots - Find each cube root.

- | | | |
|-----------------------------|-----------------------------|------------------------------|
| 11. $\sqrt[3]{8} =$ _____ | 15. $\sqrt[3]{216} =$ _____ | 18. $\sqrt[3]{729} =$ _____ |
| 12. $\sqrt[3]{27} =$ _____ | 16. $\sqrt[3]{343} =$ _____ | 19. $\sqrt[3]{1000} =$ _____ |
| 13. $\sqrt[3]{64} =$ _____ | 17. $\sqrt[3]{512} =$ _____ | 20. $\sqrt[3]{1728} =$ _____ |
| 14. $\sqrt[3]{125} =$ _____ | | |
-

Part C: Mixed Practice - Find each answer.

21. $\sqrt{49} = \underline{\hspace{2cm}}$

25. $\sqrt{324} = \underline{\hspace{2cm}}$

28. $\sqrt[3]{2744} = \underline{\hspace{2cm}}$

22. $\sqrt[3]{1} = \underline{\hspace{2cm}}$

26. $\sqrt[3]{2197} = \underline{\hspace{2cm}}$

29. $\sqrt{441} = \underline{\hspace{2cm}}$

23. $\sqrt{289} = \underline{\hspace{2cm}}$

27. $\sqrt{361} = \underline{\hspace{2cm}}$

30. $\sqrt[3]{3375} = \underline{\hspace{2cm}}$

24. $\sqrt[3]{1331} = \underline{\hspace{2cm}}$

Part D: Determine the Missing Number

31. $\underline{\hspace{1cm}}^2 = 36$

35. $\underline{\hspace{1cm}}^3 = 125$

39. $\underline{\hspace{1cm}}^2 = 625$

32. $\underline{\hspace{1cm}}^2 = 196$

36. $\underline{\hspace{1cm}}^3 = 512$

40. $\underline{\hspace{1cm}}^3 = 1000$

33. $\underline{\hspace{1cm}}^2 = 256$

37. $\underline{\hspace{1cm}}^2 = 529$

34. $\underline{\hspace{1cm}}^3 = 64$

38. $\underline{\hspace{1cm}}^3 = 729$

Part E: Word Problems

41. The area of a square garden is 144 square feet. What is the length of one side?

Answer: $\underline{\hspace{2cm}}$ feet

42. A cube-shaped box has a volume of 216 cubic inches. What is the length of one edge?

Answer: $\underline{\hspace{2cm}}$ inches

43. A square floor has an area of 400 square feet. What is the length of one side?

Answer: $\underline{\hspace{2cm}}$ feet

44. A cube has a volume of 729 cubic centimeters. What is the length of one edge?

Answer: $\underline{\hspace{2cm}}$ centimeters

45. A square playground covers 625 square yards. How long is each side?

Answer: $\underline{\hspace{2cm}}$ yards