



Exponents & Scientific Notation Practice

Name:

Grade: 8

Date:

*Practice exponents, powers, roots, and scientific notation with real-world scenarios.
Try the interactive mini-quizzes for instant feedback!*



Quick Check

1) What is 1,000,000 in scientific notation?

2) In 2^5 , what is the small raised number called?

3) What is the opposite of exponentiation?

Part 1 · Exponents & Powers

EXPONENTS

1. Simplify: 2^3

2. Simplify: 5^2

3. Simplify: 10^4

4. Simplify: 3^0

5. Simplify: 7^1

6. Simplify: $4^2 \times 2^3$

Part 2 · Laws of Exponents LAWS

7. Simplify: $x^3 \times x^2$

8. Simplify: $y^5 \div y^2$

9. Simplify: $(2^3)^2$

10. Simplify: $a^4 \times a^0$

11. Simplify: $(5^2)^3$

12. Simplify: $m^6 \div m^3$

Part 3 · Roots & Scientific Notation ROOTS

13. What is the square root of 49?

14. What is the cube root of 8?

15. Write 5,000 in scientific notation.

16. Write 0.004 in scientific notation.

17. Write 2.5×10^4 in standard form.

18. Write 7×10^{-3} in standard form.

Part 4 · Real World Practice

REAL WORLD

19. Population Growth

A city's population is 2×10^6 . What is this in standard form?

20. Distance in Space

The distance to a star is 4.5×10^{13} km. What is this in standard form?

21. Bacteria Growth

A bacteria colony doubles every hour. If it starts with 100, how many after 4 hours?

22. Tiny Numbers

The mass of a cell is 3×10^{-6} grams. What is this in standard form?

23. Large Numbers

The US national debt is about 3×10^{13} dollars. What is this in standard form?

Answer Key

1. 8
2. 25
3. 10,000
4. 1
5. 7
6. 64
7. x^5
8. y^3
9. 64
10. a^4
11. 125
12. m^3
13. 7
14. 2
15. 5×10^3
16. 4×10^{-3}
17. 25,000
18. 0.007
19. 2,000,000
20. 45,000,000,000,000
21. 1600
22. 0.000003
23. 30,000,000,000,000

Each question uses exponents or scientific notation in a real-life scenario. Encourage students to show work and explain reasoning.