Unit 3: Scientific Notation

Name: _____   **Date:** _____

1. If 0.000023 is expressed in the form 2.3×10^n, what is the value of n?

2. If 0.00037 is expressed as 3.7×10^n, what is the value of n?

3. What is the product of (6×10^3), (4.6×10^5), and (2×10^{-2}) expressed in scientific notation?

    A. 55.2×10^6 B. 5.52×10^7

    C. 55.2×10^7 D. 5.52×10^{10}

4. The quotient of (9.2×10^6) and (2.3×10^2) expressed in scientific notation is

    A. 4,000   B. 40,000

    C. 4×10^3 D. 4×10^4

5. What is the product of 8.4×10^8 and 4.2×10^3 written in scientific notation?

    A. 2.0×10^5 B. 12.6×10^{11}

    C. 35.28×10^{11} D. 3.528×10^{12}

6. If 198,000,000 is written in the form 1.98×10^n, what is the value of n?

7. What is the product of 12 and 4.2×10^6 expressed in scientific notation?

    A. 50.4×10^6 B. 50.4×10^7

    C. 5.04×10^6 D. 5.04×10^7

8. Which number is equal to 3.6×10^5?

    A. 360,000   B. 3,600,000

    C. 0.000036   D. 0.0000036

9. Which expression represents the number 0.00017 written in scientific notation?

    A. 1.7×10^{-4} B. 1.7×10^4

    C. 1.7×10^{-3} D. 1.7×10^3

10. If 340,000 is expressed in the form 3.4×10^n, what is the value of n?

11. Which value for n makes this sentence true?

    $$0.00045 = 4.5 \times 10^n$$

12. If the number 172,000,000 is expressed in the form 1.72×10^n, what is the value of n?

13. If 0.0000055 is expressed in the form 5.5×10^n, what is the value of n?

   A. 5   B. 6   C. −5   D. −6

14. If the number 36,000,000 is written in scientific notation, the numerical value of the exponent is

   A. 6   B. −6   C. 7   D. −7

15. Written in standard notation, 7.2×10^3 is equivalent to

   A. 0.0072   B. 0.00072

   C. 7,200   D. 72,000

16. In scientific notation, 54,000,000 is expressed as

   A. 5.4×10^{-7} B. 54×10^7

   C. 54×10^6 D. 5.4×10^7

17. Expressed in decimal form, the number 1.23×10^{-3} is

   A. 1230   B. 0.000123

   C. 0.00123   D. 123,000

18. Express in simplest form: $\dfrac{(2 \times 10^3)(3 \times 10^2)}{(6 \times 10^{-1})(1 \times 10^6)}$

19. If the fraction $\dfrac{123}{10,000}$ is expressed in the form 1.23×10^n, the value of n is

   A. −1   B. −2   C. −3   D. −4

20. In scientific notation, the number $\dfrac{9}{1,000,000}$ is written as

   A. 9.0×10^{-6} B. 9.0×10^{-7}

   C. 9.0×10^6 D. 9.0×10^7

21. If $7.289 \times 10^n = 0.007289$, what is the value of n?

   A. −2   B. 2   C. 3   D. −3

22. Expressed in decimal notation, 4.726×10^{-3} is

   A. 0.004726   B. 0.04726

   C. 472.6   D. 4,726

23. The distance from Earth to the Sun is approximately 93 million miles. A scientist would write that number as

    A. 9.3×10^6 B. 9.3×10^7

    C. 93×10^7 D. 93×10^{10}

24. What is the value of $\dfrac{6.3 \times 10^8}{3 \times 10^4}$ in scientific notation?

    A. 2.1×10^{-2} B. 2.1×10^2

    C. 2.1×10^{-4} D. 2.1×10^4

25. If the mass of a proton is 1.67×10^{-24} gram, what is the mass of 1,000 protons?

    A. 1.67×10^{-27} g   B. 1.67×10^{-23} g

    C. 1.67×10^{-22} g   D. 1.67×10^{-21} g

26. A micron is a unit used to measure specimens viewed with a microscope. One micron is equivalent to 0.00003937 inch. How is this number expressed in scientific notation?

    A. 3.937×10^{-5} B. 3.937×10^5

    C. 3937×10^{-8} D. 3937×10^8

27. According to the 2000 census, the population of New York State was approximately 18,900,000. How is this number expressed in scientific notation?

    A. 1890×10^4 B. 18.9×10^6

    C. 1.89×10^7 D. 189×10^5

28. The video of the movie *Star Wars* earned $193,500,000 in rental fees during its first year. Expressed in scientific notation, the number of dollars earned is

    A. 1935×10^8 B. 193.5×10^6

    C. 1.935×10^6 D. 1.935×10^8

29. Expressed in scientific notation, the number 4,600,000,000 is

    A. 4.6×10^{-8} B. 4.6×10^{-9}

    C. 4.6×10^9 D. 0.46×10^{10}

30. What is the value of n if the number 0.0000082 is written in the form 8.2×10^n?

    A. -6 B. 5   C. -5 D. 6

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1.
Answer: −5

2.
Answer: −4

3.
Answer: B

4.
Answer: D

5.
Answer: D

6.
Answer: 8

7.
Answer: D

8.
Answer: A

9.
Answer: A

10.
Answer: 5

11.
Answer: −4

12.
Answer: 8

13.
Answer: D

14.
Answer: C

15.
Answer: C

16.
Answer: D

17.
Answer: C

18.
Answer: 1

19.
Answer: B

20.
Answer: A

21.
Answer: D

22.
Answer: A

23.
Answer: B

24.
Answer: D

25.
Answer: D

26.
Answer: A

27.
Answer: C

28.
Answer: D

29.
Answer: C

30.
Answer: A