

7-2

Practice B

Form K

Multiplying Powers with the Same Base

Rewrite each expression using each base only once.

1. $10^7 \cdot 10^2$

2. $6^3 \cdot 6^1 \cdot 6^8$

3. $7^8 \cdot 7^{-1} \cdot 7^{-5}$

4. $4^{-6} \cdot 4^3 \cdot 4^4$

5. $12^2 \cdot 12^{-9} \cdot 12^{12}$

6. $3^4 \cdot 3^5 \cdot 3^{-6}$

Simplify each expression.

7. $27^{\frac{1}{3}}$

8. $9^{\frac{3}{2}}$

9. $(7a^{-1})(-3a^5)$

10. $-3j^6 \cdot 12j$

11. $(m)(m^4)(m^2)$

12. $(8h^3)(-5h^{-4})$

13. $x^3y^{-1} \cdot xy \cdot x^{-2}y^2$

14. $(-3f^2g^{-3})(2fg)(7f^3g^{-2})$

Simplify each expression. Write each answer in scientific notation.

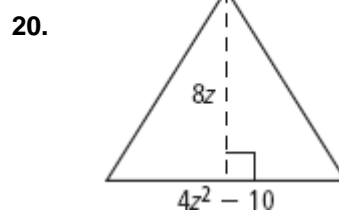
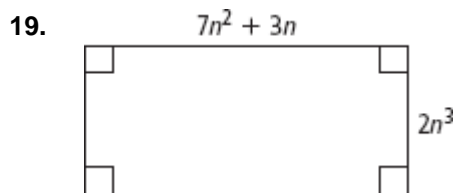
15. $(2 \times 10^6)(4 \times 10^9)$

16. $(-3 \times 10^8)(3 \times 10^{-5})$

17. $(-7 \times 10^{11})(-8 \times 10^{-4})$

18. $(6 \times 10^{-7})(-6 \times 10^{-4})$

Find the area of each figure.



Write each answer in scientific notation.

21. In the 2004 presidential election, John Kerry received approximately 5.9×10^7 votes. President Bush received approximately 1.05 times the number of votes as Senator Kerry. Approximately, how many votes did President Bush receive?
22. Lake Ontario is the smallest of the Great Lakes with a surface area of 7.34×10^3 mi². The surface area of all 5 Great Lakes is 12.8 times the surface area of Lake Ontario. What is the surface area of all 5 Great Lakes?

Complete each equation.

23. $3^{-5} \cdot 3^{\square} = 3^{10}$

24. $8^3 \cdot 8^{-5} = 8^{\square}$

25. $w^{-3} \cdot w^{-8} = w^{\square}$

26. $a^{\frac{1}{3}} \cdot a^{\square} \cdot a^{\frac{1}{3}} = a$

Simplify each expression. Write each answer in scientific notation.

27. $(9 \times 10^{-14})(-6 \times 10^{-12})$

28. $(5 \times 10^4)(0.6 \times 10^{-10})$

29. $(0.2 \times 10^{22})(0.9 \times 10^{-30})$

30. $(0.25 \times 10^7)(12 \times 10^{-15})$

31. The area of a trapezoid can be found using the formula $A = \frac{1}{2}(b_1 + b_2)h$,

where h is the height of the trapezoid and b_1 and b_2 are the bases of the trapezoid. What is the area of a trapezoid with height $14xy^2$ cm, a base $3x^2$ cm, and another base $7x^2$ cm?

32. **Reasoning** Show why you add the exponents when multiplying $4^3 \cdot 4^4$.