Name _____ Class _____ Date _____

7-2 Practice

Form K

Multiplying Powers with the Same Base

Rewrite each expression using each base only once.

1. $10^7 \cdot 10^2$ 10^9

2. $6^3 \cdot 6^1 \cdot 6^8$ 6^{12}

3. $7^8 \cdot 7^{-1} \cdot 7^{-5}$ 7^2

4. $4^{-6} \cdot 4^3 \cdot 4^4$ 4^1

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

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

Simplify each expression.

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

8. $9^{\frac{3}{2}}$ 27

9. $(7a^{-1})(-3a^5)$ $-21a^4$

10. $-3j^6 \cdot 12j$ $-36j^7$

11. $(m)(m^4)(m^2)$ m^7

12. $(8h^3)(-5h^{-4})$ $\frac{-40}{h}$

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

14. $(-3f^2g^{-3})(2fg)(7f^3g^{-2})$ $\frac{-42f^6}{g^4}$

Simplify each expression. Write each answer in scientific notation.

15. $(2 \times 10^6)(4 \times 10^9)$ 8×10^{15}

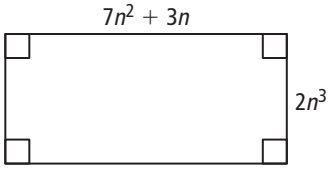
16. $(-3 \times 10^8)(3 \times 10^{-5})$ -9×10^3

17. $(-7 \times 10^{11})(-8 \times 10^{-4})$ 5.6×10^8

18. $(6 \times 10^{-7})(-6 \times 10^{-4})$ -3.6×10^{-10}

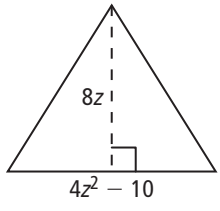
Find the area of each figure.

19.



$14n^5 + 6n^4$

20.



$16z^3 - 40z$

Name _____ Class _____ Date _____

7-2 Practice (continued) *Form K*

Multiplying Powers with the Same Base

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? 6.2×10^7

22. Lake Ontario is the smallest of the Great Lakes with a surface area of 7.34×10^3 mi^2. 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?
approximately 9.4×10^4

Complete each equation.

23. $3^{-5} \cdot 3^{\square} = 3^{10}$ 15

24. $8^3 \cdot 8^{-5} = 8^{\square}$ −2

25. $w^{-3} \cdot w^{-8} = w^{\square}$ −11

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

Simplify each expression. Write each answer in scientific notation.

27. $(9 \times 10^{-14})(-6 \times 10^{-12})$ -5.4×10^{-25}

28. $(5 \times 10^4)(0.6 \times 10^{-10})$ 3×10^{-6}

29. $(0.2 \times 10^{22})(0.9 \times 10^{-30})$ 1.8×10^{-9}

30. $(0.25 \times 10^7)(12 \times 10^{-15})$ 3×10^{-8}

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? $70x^3y^2$ cm^2

32. Reasoning Show why you add the exponents when multiplying $4^3 \cdot 4^4$.
$4^3 \cdot 4^4 = (4 \cdot 4 \cdot 4) \cdot (4 \cdot 4 \cdot 4 \cdot 4) = 4^7$