Name _____ Date _____ Class _____

Skills Readiness
SKILL 59 *Properties of Exponents*

Vocabulary: $X^3 \longrightarrow$ exponent
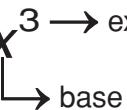
$\longrightarrow$ base

To multiply variables with the same base, <u>add</u> the exponents. | Rule: $x^a \cdot x^b = x^{a+b}$

To multiply expressions that include numbers and variables:

• Multiply the coefficients. If a variable does not have a coefficient, it is understood to be 1.

• <u>Add</u> the exponents of those variables that are the same. If a variable does not have an expressed exponent, it is understood to be 1.

Example 1: $5n \cdot 6n$	Example 2: $-4x^3 \cdot 7x$	Example 3: $h^3k \cdot 3h^5k^2$
$(5 \cdot 6)(n^{1+1}) = 30n^2$	$(-4 \cdot 7)(x^{3+1}) = -28x^4$	$(1 \cdot 3)(h^{3+5})(k^{1+2}) = 3h^8k^3$

Practice on Your Own
Simplify each expression.

1. $2x \cdot 5x$

2. $-3a \cdot 7a^3$

3. $-2 \cdot 8mn$

4. $15p^2 \cdot 3pq$

5. $5b^2c \cdot 5b^3c^3$

6. $-2xy \cdot (-3xy)$

7. $-16z^4 \cdot (-z)$

8. $d^2e \cdot 8de$

9. $6t \cdot (-3t)$

10. $w^2 \cdot w \cdot w^5$

11. $-2r \cdot 11r^2 \cdot (-r^4)$

12. $5x \cdot 10y \cdot xy$

Check
Simplify each expression.

13. $15f \cdot 2f$

14. $-9 \cdot 3x^2y$

15. $-20h \cdot (-3h^3)$

16. $7ab \cdot 7ab$

17. $p^3q \cdot 4pq$

18. $-3u \cdot 7u^2v$

19. $g^3 \cdot g^4 \cdot g$

20. $-2y \cdot 8z \cdot yz$

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