

NAME _____

DATE _____

PERIOD _____

Lesson 4 Reteach

Powers of Monomials

Power of a Power: To find the power of a power, multiply the exponents.

Power of a Product: To find the power of a product, find the power of each factor and multiply.

Example 1

Simplify $(5^3)^6$.

$$\begin{aligned} (5^3)^6 &= 5^{3 \cdot 6} && \text{Power of a power} \\ &= 5^{18} && \text{Simplify.} \end{aligned}$$

Example 2

Simplify $(-3m^2n^4)^3$.

$$\begin{aligned} (-3m^2n^4)^3 &= (-3)^3 \cdot m^{2 \cdot 3} \cdot n^{4 \cdot 3} && \text{Power of a product} \\ &= -27m^6n^{12} && \text{Simplify.} \end{aligned}$$

Exercises

Simplify.

1. $(4^3)^5$

2. $(4^2)^7$

3. $(9^2)^4$

4. $(k^4)^2$

5. $[(6^3)^2]^2$

6. $[(3^2)^2]^3$

7. $(5q^4r^2)^5$

8. $(3y^2z^2)^6$

9. $(7a^4b^3c^7)^2$

10. $(-4d^3e^5)^2$

11. $(-5g^4h^9)^7$

12. $(0.2k^8)^2$

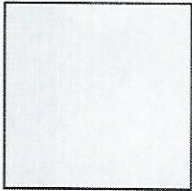
Lesson 4 Skills Practice

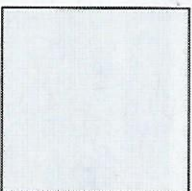
Powers of Monomials

Simplify.

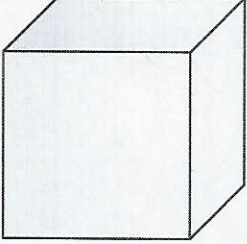
- 1. $(7^2)^3$
- 2. $(3^2)^6$
- 3. $(8^3)^2$
- 4. $(9^4)^2$
- 5. $(d^7)^6$
- 6. $(m^5)^5$
- 7. $(h^6)^3$
- 8. $(z^7)^3$
- 9. $[(4^3)^2]^2$
- 10. $(-5a^2b^7)^7$
- 11. $(2m^5g^{11})^6$
- 12. $[(2^3)^3]^2$
- 13. $(7a^5b^6)^4$
- 14. $(7m^3n^{11})^5$
- 15. $(-3w^3z^8)^5$
- 16. $(-7r^4s^{10})^4$

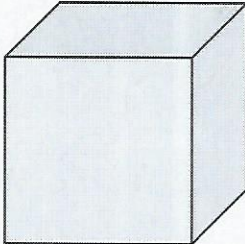
GEOMETRY Express the area of each square below as a monomial.

17.  $6g^3h^5$

18.  $13d^5e$

GEOMETRY Express the volume of each cube below as a monomial.

19.  $7c^5d^2$

20.  $6r^7s^8$

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