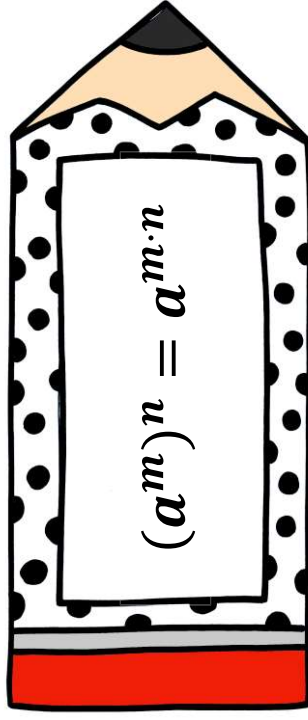


Notes: Use the Power Rule to Simplify Expressions



The **Power Rule** states that when we raise a _____, we to another _____, we can _____ the _____.

WITH NUMBERS

$$(2^3)^2 = 2^{3(2)} =$$

WITH VARIABLES

$$(x^2)^4 = x^{2(4)} =$$

Simplify each expression using the power rule.

1. $(x^3)^6$	2. $(y^2)^{10}$	3. $(m^2)^5$
4. $(5x^3)^2$	5. $(-3xy^2)^2$	6. $-(4x^2y^5)^3$
7. $4(\frac{1}{2}x^2y^4z^3)^4$	8. $(-2a^2b^5)^3(3ab)^2$	9. $(4mn)^4(0.5m)^2$
10. $(x^2)^4(-3x^2y)^2(2y^2)^3$	11. $2mn^3(4mn)^3 + (-5m^2n^3)^2$	12. $(2x^2y)^2(xy)^2 + (4x^3y)^2(y^2)$

Name: _____

Date: _____

Period: _____

A. Use the Power Rule to Simplify Expressions

Simplify each expression using the power rule.

1. $(y^2)^3$

2. $(x^4y)^3$

3. $(-3a^2)^3$

4. $(4x^4y^3)^3$

5. $(5a^2b^3)^3$

6. $(2m^2n^4)^5$

7. $(-4a^2b)^4$

8. $(12x^3y^2z)^2$

9. $(8x^2y^2)^3$

10. $-2(5x^2y^4)^3$

11. $10(3a^3bc^7)^3$

12. $-4(-3m^2n^{10})^2$

13. $(3x)^2(2x^3y^4)^3$

14. $(3x^4yz)^2(5x^3y^2)^3$

15. $(\frac{1}{2}a^3)^2(10a^2b)^3$

16. $(4a)^2(-a^2b)^3 + 5a^8b^3$

17. $(5xy)^3(\frac{1}{5}xy^3)^2 + (-7x^5y^9)$

18. $2(xy)^2(4xy^3)^4 + (xy^4)^3(x^3y^2)$