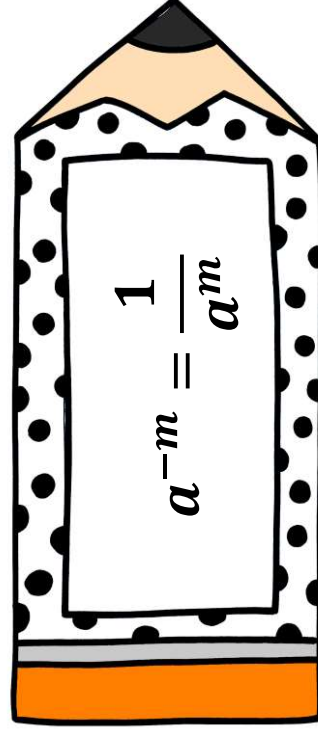


Notes: Simplify Expressions with Negative Exponents

Flip the fraction into the _____ and make the _____ positive!

All previous exponent rules still apply; you just have to remember your _____!



WITH NUMBERS

$$2^{-2} = \frac{1}{2^2} =$$

WITH VARIABLES

$$x^{-4} =$$

Simplify each expression. Rewrite using only positive exponents.

1. x^{-8}

2. $5y^{-6}$

3. $\frac{1}{m^{-2}}$

4. $\frac{4x^{-3}}{3y^{-7}}$

5. $\frac{3}{8}x^{-9}y^2z^{-4}$

6. $\frac{3^{-2}x^{-9}}{2^{-2}y^{-5}z^8}$

7. $\frac{3^{-1}m^{-5}n^5}{2^{-2}m^7n^6} \cdot 3m^{-4}n^6$

8. $\frac{2x^5y^6}{16x^8y^2} \cdot (2xy)^3$

PUT IT ALL TOGETHER!

9. $\left(\frac{-4a^7b^6}{6a^8b^4}\right)^{-2} \cdot \left(\frac{1}{2}a^4b\right)^{-2} + (-9a^{-6}b^{-6})$

10. $\frac{(2x^{-3}y^4)^3}{4x^3y} (2x^2y^{-2})^5 - 4x^{-2}y$

Name: _____

Date: _____

Period: _____

A. Simplify Expressions with Negative Exponents

Simplify each expression. Rewrite using only positive exponents.

1. x^{-2}

2. b^{-1}

3. $7x^{-5}$

4. $6x^{-5}y^{-3}z^2$

5. $\frac{1}{a^{-8}}$

6. $\frac{b^{-3}c^4}{a^{-6}}$

7. $\frac{5x^{-5}z^4}{8y^{-9}}$

8. $\frac{3}{4}x^{-3}y^{-9}z^{-4}$

9. $\frac{5^{-2}x^{-9}}{4^{-2}y^5z^{-2}}$

10. $\frac{(-4)^2m^4n^{-7}}{(-2)^{-2}q^5r^{-3}}$

11. $\frac{(-3)^2b^{-3}c^{-5}d^8}{-3^2a^{-2}}$

12. $\frac{6^{-2}x^{-9}y^7}{3^2w^4z^{-3}}$

13. $\frac{6x^{-7}y^4}{3x^{-8}y^{12}} \cdot 4x^{-3}yz$

14. $\frac{3x^{17}y^6}{5x^{-4}y^{10}} \cdot (3x^{-1}y)^2$

15. $\left(\frac{3a^3b^4}{-9a^3b^6}\right)^{-2} (a^{-2})^4 + 4a^{-8}b^4$

16. $\frac{4x^{-2}y^2}{2^{-3}x^2y^7} \cdot (x^{-4}y^{-5})^{-3} - 12x^8y^{10}$

PUT IT ALL TOGETHER!