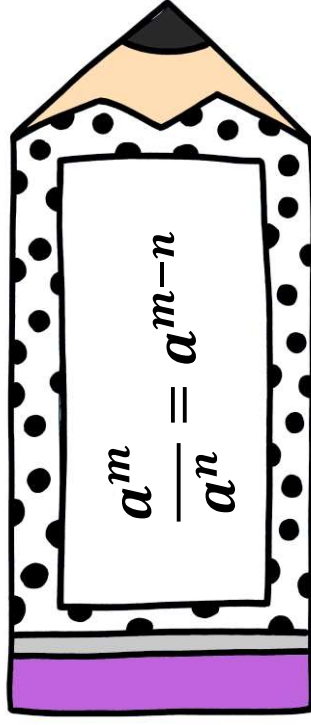


Notes: Use the Quotient Rule to Simplify Expressions



The **Quotient Rule** states that when we _____ two powers with the same _____, we can _____ the _____.

WITH NUMBERS

$$\frac{2^3}{2^2} = 2^{3-2} =$$

WITH VARIABLES

$$\frac{x^4}{x^2} = x^{4-2}$$

Simplify each expression using the power rule.

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

2. $\frac{x^7y^8}{x^3y^2}$

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

4. $\frac{9x^5y^6}{3x^3y}$

5. $\frac{-15a^{10}b^4c}{5a^7b^4c}$

6. $\frac{6x^2y^9z^{13}}{14x^2y^5z^{12}}$

7. $\frac{12m^9n^5}{4m^7n} \cdot 4m^2n^4$

8. $\frac{64x^7y^4}{16x^4y^2} \cdot (2xy)^3$

PUT IT ALL TOGETHER!

9. $\left(\frac{45a^9b^6}{-9a^3b^2}\right)^2 \cdot (a^2)^4 + 6a^{12}b^8$

10. $\frac{2x^9y^7}{4x^6y} \cdot (2x^2y^2)^3 - 6x^9y^{12}$

Name: _____

Date: _____

Period: _____

A. Use the Quotient Rule to Simplify Expressions

Simplify each expression using the quotient rule.

1. $\frac{x^9}{x^2}$

2. $\frac{a^3b^4}{a^3b^2}$

3. $\frac{4x^7y^9}{x^3y^5}$

4. $\frac{24m^{18}n^8}{16m^7n^6}$

5. $\frac{-15x^{22}y^4z^{15}}{25x^{12}y^4z^{10}}$

6. $\frac{21x^3y^3z^3}{7x^3y^2z^3}$

7. $\frac{54a^{25}b^{16}c}{24a^{21}b^6c}$

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

9. $\frac{35m^{19}n^{16}}{7m^5n^8}$

10. $\frac{-8x^{20}y^9}{-36x^5y^8}$

11. $\frac{17a^8b^{16}c^{24}d^2}{3a^4d^2}$

12. $\frac{50x^{25}y^7}{10x^{24}y^6}$

13. $\frac{6x^7y^{15}}{12x^3y^5} \cdot 8x^4y$

14. $\frac{32x^{35}y^{15}}{8x^2y^5} \cdot (4xy)^2$

15. $(\frac{-6a^6b^6}{3a^5b^4})^2 \cdot (3a^3b)^2 + (-10a^8b^6)$

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

PUT IT ALL TOGETHER!