

Division

Part 1: Expand each expression to find the quotient.

1.) $\frac{2^4}{2^3} =$ _____ $=$ _____

2.) $\frac{3^2 5^5}{3 \cdot 5^2} =$ _____ $=$ _____

3.) $\frac{x^8}{x^3} =$

4.) $\frac{2^3 x^3 y^4}{2 \cdot xy^2 z} =$

5.) Explain why you can **subtract** exponents when you are dividing two things with the same base.

Part 2: Simplify to find the quotients.

6.) $\frac{a^8}{a^3}$

7.) $\frac{7^{11}}{7^8}$

8.) $\frac{7 \cdot b^5}{b^4}$

9.) $\frac{x^{10}}{x^4}$

10.) $\frac{12 \cdot g^8 \cdot h^4}{g^3 \cdot h^5}$

11.) $\frac{4 \cdot p^{11}}{8 \cdot p^6}$

12.) $\frac{c^9}{6c^4}$

13.) $\frac{2 \cdot x^3 y^8}{4 \cdot y^2}$

14.) $\frac{3x^{14} y^{11}}{18x^2}$

Part 3: Negative Exponents

15.) Anything to the zero power is _____. Show why this happens by solving this problem. $\frac{x^5}{x^5} = \underline{\hspace{2cm}}$

Rewrite **without negative exponents**.

16.) $6 \cdot c^3 \cdot d^{-2}$

17.) $6x^4x^{-10}$

18.) $(2^0 \cdot x^{-3})^4$

19.) $\frac{a^{12}b^{-3}}{a^5b^5}$

20.) $\left(\frac{5x^{13}y^5z^2}{3 \cdot 5^2}\right)^0$

21.) $(g^3 \cdot g^{-2})^4$

22.) $\left(\frac{4c^{-5}}{8d^0}\right)^3$

23.) $\left(\frac{x^{-8}}{y^{11}}\right)^{-2}$

24.) $\frac{(2x^3) \cdot (x^4)^2}{8x^{11}}$

Exponent	Result
4^4	
4^3	
4^2	
4^1	
4^0	
4^{-1}	
4^{-2}	

25.) What is the pattern on the **left side** of the table with the exponents?

26.) What is the pattern on the **right side** of the table with the results?