

Law 3:

$$a^m \cdot a^n = a^{m+n}$$

Law 4:

$$a^m \div a^n = a^{m-n}$$

Name: _____

HW # 13

Simplify the expression by writing as a single power to a **positive exponent**. You **do not need to evaluate**.

1. $\frac{9^{12}}{9^3}$
 $\boxed{9^9}$

2. $\frac{6^7}{6^{11}}$
 $\boxed{\frac{1}{6^4}}$

3. $\frac{y^7}{y^1}$
 $\boxed{y^6}$

4. $\frac{30x^7}{5x^3}$
 $\boxed{6x^4}$

5. $6^4 \cdot 6^{-6}$
 $\boxed{\frac{1}{6^2}}$

6. $x^5 \cdot x^6$
 $\boxed{x^{11}}$

7. $m^4 \cdot m^1$
 $\boxed{m^5}$

12. $\frac{11^{-4} \cdot 11^{15}}{11^6}$
 $\boxed{11^5}$

13. y^{-12}
 $\boxed{\frac{1}{y^{12}}}$

14. $\frac{15^{-4} \cdot 15^{-4 - (-6)}}{15^{-6}}$
 $\boxed{15^2}$

15. $3^4 \cdot 3^1 \cdot 3^{-2}$
 $\boxed{3^3}$

16. $(-3a^3)(2a^5)$
 $\boxed{-6a^8}$

Simplify each expression completely. Evaluate any numbers raised to a power.

17. 125^0
 $\boxed{1}$

18. $\frac{(-5)^3 \cdot (-5)^5}{(-5)^7}$
 $\frac{(-5)^8}{(-5)^7} \rightarrow (-5)^1 \rightarrow \boxed{-5}$