

Name _____

PROPERTIES OF EXPONENTS – Day 1

Expand each expression.

1) $t^3 \cdot t^4 =$

2) $5s^2 \cdot 6s^6 =$

Property of Exponents: To *multiply* powers with the same base, *add* the exponents.

*For every nonzero number b , $b^m \cdot b^n = b^{m+n}$.

EXAMPLE: $x^2 \cdot x^3 =$

Simplify.

3) $2^3 \cdot 2^5 =$

4) $2n^5 \cdot 3n^4 =$

5) $(14x^2y^4)(2y^3) =$

6) $(10xy^{\frac{9}{2}})(3x^{\frac{1}{2}})(2x^2y^{\frac{7}{2}}) =$

7) Find the area in square units of a rectangle that has a width of $2x^2y^2$ and a length of $4x^5y^{\frac{1}{3}}$.

Expand and reduce:

$$8) \frac{b^5}{b^2} =$$

$$9) \frac{b^2}{b^5} =$$

Property of Exponents: To *divide* powers with the same base, *subtract* the exponents.

***For every nonzero number b,** $\frac{b^m}{b^n} = b^{m-n}$.

EXAMPLES: $\frac{3^4}{3^3} =$

$$\frac{a^3}{a^{10}} =$$

Simplify each expression.

$$10) \frac{x^3y^5}{x^2y^2} =$$

$$11) \frac{8m^5n^4}{2m^8n^7} =$$

$$12) \frac{(6a^4)(3a^2)}{2a^{\frac{5}{2}}} =$$

$$13) \frac{(-3m^3n^2)(4mn)}{6m^2n^3} =$$

14) The area, A, of a parallelogram is $36x^8y^7$ square feet. The height, h, of the parallelogram is $9x^3y^5$. The area of a parallelogram can be found by using the formula $A = bh$. Find the length of this parallelogram's base, b.