Homework Review - Sections 8.1 and 8.2

$$(15) (16 \cdot 29)^{3} = 15^{3} \cdot 29^{3}$$

$$(15) 7^{1} \cdot \frac{1}{7^{2}} = \frac{7^{2}}{7^{2}} = 7^{7}$$

$$\frac{1^{3}}{1^{2}} \cdot \frac{1}{7^{2}} = \frac{7^{2}}{7^{2}} = 7^{7}$$

## Negative and Zero exponents:

What is a zero exponent?

What does it mean?

$$\frac{x^{4}}{x^{4}} = x^{4} + x^{6} = 1 \quad 7[.2] = 1 \quad (2xy = 3)^{6} = 1$$

$$a^{-n} = \frac{1}{a^{n}} \quad (a \neq 0) \quad \text{What is a negative exponent?}$$
What does it mean?

$$2^{-2} = \frac{1}{2^{2}} \quad (xy)^{-3} = \frac{1}{(xy)^{3}} \quad \frac{x^{3}}{x^{5}} = x^{3-5}$$

$$\frac{x^{4}}{x^{4}} = x^{6} \quad 0^{6} \neq 1$$
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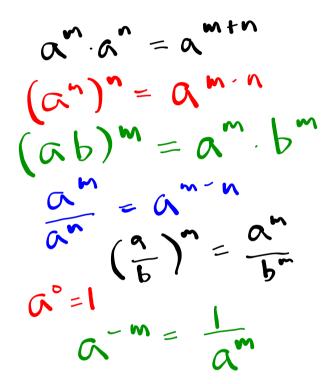
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## Summary of Exponent Properties:



Names don't really matter ... Product of Powers Property

Power of Powers Property

Power of a Product Property

Quotient of Powers Property

Power of a Quotient Property

Definition of Zero Exponents

Definition of Negative Exponents

**13.** 
$$x^{-7} = \frac{1}{\chi^2}$$

13. 
$$x^{-7} = \frac{1}{\sqrt{7}}$$

14.  $6y^{-4}$ 

15.  $(2b)^{-5} = \frac{1}{(2b)^5} = \frac{1}{($ 

14. 
$$6y^{-4}$$

**20.** 
$$(8mn^3)^0$$

**22.** 
$$\frac{x^2}{y^{-4}} = \frac{x^2}{y^4}$$

$$x^{2} \cdot \frac{1}{y^{4}} =$$

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**23.** 
$$\frac{x^{-6}}{4y^5} = \sqrt{\frac{1}{4x^4y^5}}$$

15. 
$$(2b)^{-\frac{1}{2}}$$

$$\frac{1}{(2b)^{5}} = \frac{1}{32b^{5}}$$

$$\frac{21. \frac{c}{d^{-5}}}{\frac{1}{c^{3}}} = \frac{1}{c^{3}} \cdot \frac{1}{c^{3}} = \frac{1}{c^{3}} = \frac{1}{c^{3}} \cdot \frac{1}{c^{3}} = \frac{1}{c^$$

$$\frac{24. \frac{1}{3x^{-3}y^{-7}}}{3 \cdot x^{-3} \cdot y^{-7}} = \frac{1}{x^{3}y^{7}}$$

Metric System The metric system has names for very small lengths.

- **a.** One micrometer is  $10^3$  times the length of one nanometer. One nanometer is  $10^{-9}$  meter. Write one micrometer in meters.
- **b.** One femtometer is  $10^3$  times the length of one attometer. One attometer is  $10^{-18}$  meter. Write one femtometer in meters.
- **c.** One centimeter is  $10^{10}$  times the length of one picometer. One picometer is  $10^{-12}$  meter. Write one centimeter in meters.

## Homework:

p. 506, 3-10, 28-43, 51, 53