Intro to Properties of Exponents **Name: _____**

Algebra II **Date: _____ Block: _____**

Directions: Review the properties of exponents you learned in Algebra I below.

Product of Two Powers (with equal bases)

$$x^a \cdot x^b = x^{a+b}$$

Examples:

a) $x^4 \cdot x^6 = x^{10}$

b) $3x^2 \cdot -7x = -21x^3$

c) $2x^7y^4z^5 \cdot -xyz^{10} = -2x^8y^5z^{1}$

Power of a Power

$$(x^a)^b = x^{a \cdot b}$$

Examples:

a) $(y^5)^8 = y^{40}$

b) $(x^6)^3 = x^{18}$

c) $(x^{12})^2 = x^{24}$

Quotient of Two Powers (with equal bases)

$$\frac{x^a}{x^b} = x^{a-b}$$

Examples:

a) $\frac{t^{19}}{t^{10}} = t^9$

b) $\frac{12wx^6y^5z}{8x^2yz} = \frac{3wx^4y^4z}{2}$

Power of a Product

$$(xy)^a = x^a y^a$$

Examples:

a) $(4y^6)^2 = 16y^{12}$

b) $(-2x^4)^3 = -8x^{12}$

c) $(3x^{10})^3 = 27x^{30}$