Exponents Test 2 Study Guide

Exponential Form and Simplifying Powers
- What is the base?
- What is the exponent?
- What is the coefficient?
- Simplify -2^4
- Simplify 3^2u^6

Evaluating Expressions
- Find $x - y(z \cdot y^z)$ for x = 20, y = 4, z = 2
- Find $x \div y^z$ for x = 9, y = 3, z = 2

Zero and Negative Exponents
- Any number raised to the zero power always equals: ___
- $(-5)^0$
- -3^0
- $3b^0$
- Simplest form only has (circle one: *Positive* or *Negative?*) exponents.
- For any nonzero number a and integer n, $a^{-n} = \frac{1}{a^n}$
- $a^{-2}b^4$
- $\frac{a^3b^{-1}}{d^{-4}}$
- Additional negative exponent practice - click HERE
- Additional zero and negative exponent help and practice problems - click HERE

Multiplying and Dividing Powers
- Multiplying powers with the same base → _____ the exponents
- Dividing powers with the same base → _____ the exponents
- $5^4 \cdot 5^3$
- $5hy^{-3}7h^{-5}y^3$
- $\frac{6^9}{6^4}$
- $\frac{4d^{-2}g^5}{2d^6g^{-4}}$

Power of a Power
- Power to a power you _____ the exponents
- $(9^4)^5$
- $(3m^4)^3$
- $(\frac{3a^{-2}}{4b^2})^{-3}$

Transforming Exponential Functions

- Basic Exponential Function: $y = ab^x$
- Transformations: $y = ab^{c(x-h)}+k$
- What happens if a is negative?
- What happens if k is positive? What if it is negative?
- What happens if $|a|>1$? What if $|a|<1$
- What happens if h is added? What if it is subtracted?
- What happens if c is negative?
- What happens if $|b|<1$?
- What happens if $|c|>1$? What if $|c|<1$?
- If $y=2^x$ is the parent function, how will $y=-2^x-2$ compare? (What translations will you need to do? Be sure to put them in order!)
- Practice transforming exponential functions - click HERE

Exponential Growth and Decay
- When $y = ab^x$ and $b>1$, the equation represents (*Exponential Growth* or *Exponential Decay*)
- When $y = ab^x$ and $b<1$, the equation represents (*Exponential Growth* or *Exponential Decay*)
- Does $y = 2(\frac{1}{3})^x$ represent growth or decay? What is the (growth/decay) factor? What is the rate of (growth/decay)?
- Compound Interest Formula:
- Half-Life Formula:
- Compound Interest Practice - click HERE
- Half-Life Practice - click HERE

Scientific Notation
- A number written is in scientific notation if it is in the form $c \times 10^n$ where c is _____ and n is a(n) _____.
- Is $.32 \times 10^3$ written in scientific notation?
- In order to add or subtract numbers in scientific notation, the exponents must be _____.
- In order to multiply or divide numbers in scientific notation, you use the _____ property and the _____ property to group the decimal part and apply exponent rules.
- Practice converting between scientific notation and standard form - click HERE
- Practice multiplying and dividing scientific notation - click HERE
- Practice adding and subtracting scientific notation - click HERE