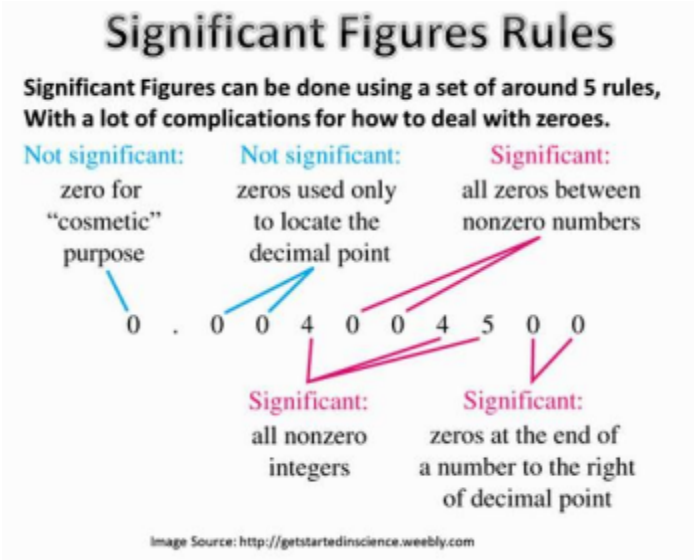
Scientific Notation in the Real World

Notes	Video Links & Practice Space
Vocabulary 1. **Significant digits:** the nonzero digits of a number and the _____ that are included between them or any trailing zeros that are considered to be precise.	**Vocabulary (:29)**
Operations with Scientific Notation **Step 1:** Simplify inside parenthesis () or other grouping symbols [ ], | | using order of operations. **Step 2:** Simplify terms with exponents and radicals. **Step 3:** Multiply or divide from left to right. **Step 4:** Add or subtract from left to right.	**Operations with Scientific Notation (3:46)** **Example:** $(6.7\ x\ 10^{4}\ )(8.7\ x\ 10^{6}\ )\ +\ (3.2\ x\ 10^{7})$

You will need to PRINT this document OR go to FILE and click MAKE A COPY!

Practice Problem#1 $(1.4\ x\ 10^{16}) - (7.35\ x\ 10^{14}) + (3.2\ x\ 10^{10})$ **Practice Problem# 2** $\frac{(4\ x\ 10^{12})(5.625\ x\ 10^{-18})}{(1.5\ x\ 10^{12})(2.5\ x\ 10^{-9})}$	**Practice Operations with Scientific Notation (8:01)**
Significant digits **Important:** When solving real-world scientific notation problems, your final answer must be as precise as the measurements used to get it, this includes the correct number of digits and is labeled with the correct units. Rules for determining significant digits: 1. Non-zero digits are _____significant. 2. Any zeros between two _____ digits are significant. 3. A final zero or trailing _____the decimal portion only are significant.	**Significant Digits (1:18)**



Adding and Subtracting Numbers in Scientific Notation

In addition and subtraction, the number of significant digits in the final answer is based on the number of digits in the _____ number given. This means the number of digits after the decimal point determines the number of digits that can be expressed in the answer.

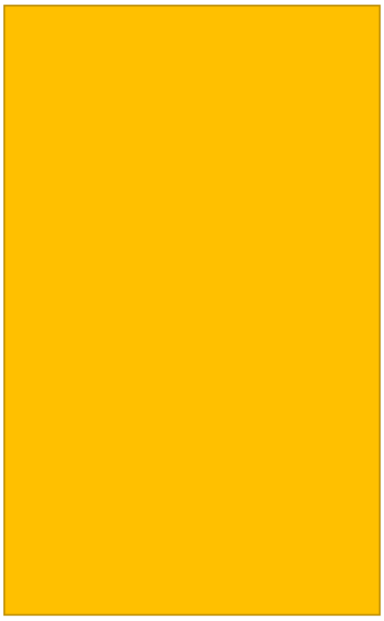
Multiplying and Dividing Numbers in Scientific Notation

In multiplication and division, the number of significant digits is _____on the number that has the fewest number of digits.

You will need to PRINT this document OR go to FILE and click MAKE A COPY!

Significant Digit Practice **Zeros appearing in front of Non-zero digits are not significant.** 0.068523 has _____ significant digits 0.00008 has _____ significant digits **Zeros appearing between Non-zero digits are significant** 50.6 has _____ significant digits 970006 has _____ significant digits **Zeros at the end of a number and to the right of a decimal are significant** 35.00 has _____ significant digits 5.000000000 has _____ significant digits	**Significant Digit Practice (1:30)**

Scientific Notation in the Real World Practice Problems	**Scientific Notation in the Real World Practice Problems (11:12)**
1. A female hippo weighs approximately 2.9×10^3 lbs and a male weighs approximately 7.0×10^3 what is their combined weight? Write the final answer in scientific notation with the correct number of significant digits. 2. $\frac{(3.89 \times 10^2)(2.6 \times 10^8)}{1.72 \times 10^5}$ 3. If we were looking to find the product of: 6.78×10^4 , 5.06×10^6 and 4.72965×10^{-8}. **How many significant digits should the product have?**	

4. Landon is building a rectangular deck in his backyard. He will be using half of his deck for an outdoor kitchen and the other half for shaded seating. The drawing below represents his deck. How much area will he have for his kitchen and seating if he plans to divide his deck in half? The answer should be in scientific notation with the correct significant digits, labeled with the correct units.	$4.16 \times 10^2 f_t$  $2.8 \times 10^2 f_t$