Adding and Subtracting with Scientific Notation

Notes	Video Links & Practice Space
Vocabulary 1. **Common factor:** the factors that two or more _____ have in common. 2. **Distributive property:** any number _____ to a sum or difference of numbers equals to the sum or difference of the products; a(b + c) = $a \bullet b + a \bullet c$ 3. **Factoring:** taking a number or _____ apart and writing it as a product of two or more factors. 4. **Scientific notation:** a method of writing very large or very small numbers using _____ in which a number is expressed as the product of a power of 10 and a number that is between 1 and 10.	**Vocabulary (1:04)**
Add and Subtract with the Same Power of Ten - Option 1 **Simplify - Add/Subtract** $5.62 \times 10^4 + 4.32 \times 10^4$ $9.87 \times 10^9 - 4.36 \times 10^9$	**Add and Subtract with Same Power of Ten - Option 1 (4:15)**

Add and Subtract with the Same Power of Ten - Option 2 **Factoring out common Factor** $5.62 \times 10^{4} + 4.32 \times 10^{4}$ $9.87 \times 10^{9} - 4.36 \times 10^{9}$	**Add and Subtract with the Same Power of Ten - Option 2 (1:32)**
Increasing and Decreasing Exponents **To increase an exponent, shift the decimal point to the left.** 6.78×10^{4} **=** **To decrease an exponent, shift the decimal point to the right.** 6.78×10^{4} **=**	**Increasing and Decreasing Exponents (1:45)**

Add and Subtract with Different Powers of Ten **Step 1:** Rewrite so that the expressions have the same exponents. **Step 2:** Rewrite the sum or difference by factoring out the common factor, the power of ten. **Step 3:** Add or subtract the factors. **Step 4:** Rewrite the final answer in scientific notation.	**Add and Subtract with Different Powers of Ten (2:33)** **Example** $4.35 \times 10^{5} + 2.14 \times 10^{3}$
Practice Converting to Same Power of Ten 1. $2.5 \times 10^{4} + 6.14 \times 10^{1}$ 2. $7 \times 10^{-5} + 6.4 \times 10^{-1}$ 3. $1.39 \times 10^{6} - 4 \times 10^{2}$ 4. $5 \times 10^{-4} + 3.3 \times 10^{-6}$	**Practice Converting to Same Power of Ten (5:52)**

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Practice Problems	**Practice Problems (5:39)**
1. $(8.75\ x\ 10^{-13}\ )$ + $(6.89\ x\ 10^{-15})$ 2. $(4.6\ x\ 10^{20})$ - $(3.2\ x\ 10^{20})$ 3. $(1.328 \times 10^{7}) + (2.034 \times 10^{5})$ 4. $(3.2 \times 10^{-3}) - (8.02 \times 10^{-5})$	