Name: _____ Date: _____

Tuesday: √8 1 / √8 1 + √8 1

> **Do Now:**

   1. Solve. $(6.5 \times 10^{-6})(4.5 \times 10^{9})$

   2. Solve. $\dfrac{(5.6 \times 10^{12})}{(10.5 \times 10^{5})}$

> **Math Investigation**

   • You will work in your table group.

   • Together, you will work together to try to solve the problem given to you.

   • You may use your notes and your teammates

   • Together, you CAN solve the problem – Use your rules of exponents to help you!

   • I will be cycling around to monitor your progress and check your final answers.

Example 1:	**Example 2:**
$\dfrac{(2 \times 10^{-3})(3 \times 10^{7})}{(2 \times 10^{-8})}$	$\dfrac{(6 \times 10^{4})(2 \times 10^{7})}{(4 \times 10^{10})}$

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Example 3: $$\frac{(7\times10^{-12})(1\times10^{6})}{(14\times10^{-8})}$$	**Example 4:** $$\frac{(5\times10^{-9})(6\times10^{7})}{(3\times10^{5})}$$
Example 5: $$\frac{(8\times10^{5})(4\times10^{-10})}{(8\times10^{9})}$$	**Example 6:** $$\frac{(5\times10^{-17})(4\times10^{-10})}{(2\times10^{5})}$$
Example 7: $$\frac{(9\times10^{-7})(4\times10^{14})}{(6\times10^{4})}$$	**Example 8:** $$\frac{(5.6\times10^{-7})(3.6\times10^{14})}{(5\times10^{4})}$$
Example 9: $$\frac{(6.4\times10^{5})(2.9\times10^{12})}{(9.8\times10^{5})}$$	**Example 10:** $$\frac{(4.8\times10^{8})(3.9\times10^{4})}{(7\times10^{3})}$$

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Let's check our work by going through the first 3 examples together.

Simplifying Expression in Scientific Notation (Step by Step)

Example 1: $\dfrac{(2\times10^{-3})(3\times10^{7})}{(2\times10^{-8})}$

First, we take care of the numerator.

- Multiply the factor 1 numbers: 2 x 3 = _____
- Multiply factor 2 numbers by adding exponents: 10^{-3} x 10^{7} = _____
- Combine both factors to get your product: _____

Second, divide your new product by the denominator.

- Your new problem is:

- Divide factor 1 numbers: _____
- Divide factor 2 numbers by subtracting exponents: $10^{(4-(-8))}$ = _____

Last, combine your factors.

- Final answer: _____

Example 2: $\dfrac{(6\times10^4)(2\times10^7)}{(4\times10^{10})}$

First, we take care of the numerator.

- Multiply the factor 1 numbers: 6 x 2 =_____
- Multiply factor 2 numbers by adding exponents: 10^4 x 10^7 = _____
- Combine both factors to get your product: _____

Second, divide your new product by the denominator.

- Your new problem is:

- Divide factor 1 numbers: 12 ÷4 = _____
- Divide factor 2 numbers by subtracting exponents: $10^{(11-10)}$ = _____

Last, combine your factors.

- Final answer: _____

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Example 3: $\dfrac{(7\times10^{-12})(1\times10^{6})}{(14\times10^{-8})}$

First, we take care of the numerator.

- Multiply the factor 1 numbers: 7 x 1 = _____
- Multiply factor 2 numbers by adding exponents: 10^{-12} x 10^{6} = _____
- Combine both factors to get your product: _____

Second, divide your new product by the denominator.

- Your new problem is:

- Divide factor 1 numbers: 7 ÷14 = _____
- Divide factor 2 numbers by subtracting exponents: $10^{(-6-(-8))}$ = _____

Last, combine your factors.

- Final answer: _____
- CORRECT SCIENTIFIC NOTATION ANSWER: _____

Wednesday: $(\sqrt{9})^{2}$ /$\sqrt{361}$/$\sqrt{16}$ + $\sqrt{64}$

> **Do Now:**

1) Simplify. $\dfrac{(4.6\times10^{3})(3.2\times10^{7})}{(7\times10^{9})}$

2) Write the steps to the problem you just solved above.

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> **Adding and Subtracting Numbers in Scientific Notation**

Examples of when we would need to add and subtract numbers in scientific notation:

There are 2 methods to add and subtract numbers in scientific notation:

Example 1: $(6.89 \times 10^4) + (9.24 \times 10^5)$

Method One:

1. Convert all numbers into _____.
    - $6.89 \times 10^4 =$
    - $9.24 \times 10^5 =$

2. Complete the operation indicated to solve.

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Example 2: $(6.89 \times 10^4) + (9.24 \times 10^5)$

Method Two:

1. Check to see if the powers of 10 have the _____.
2. Convert numbers to the same by power of 10 by

   _____.

   - $6.89 \times 10^4 = 6.89 \times 10^4$
   - $9.24 \times 10^5 =$ I want the power to be 4, so I need to subtract 1 from the exponent. When I subtract I move the decimal right. =

3. _____ and keep the power of ten to solve.

   - $92.4 + 9.89 =$

4. _____ to proper scientific notation form.

   - $99.29 \times 10^4 =$