

Monday, September 29, 2014

Express each number in standard form.

1. 2.003×10^4
2. 3.45×10^{-3}

Express each number in scientific notation.

3. 169,000,000
4. 0.004
5. Order 6000, 9.8×10^3 , 8×10^4 , and 5.3×10^{-1} from least to greatest.
6. An amoeba is 0.0002 meters long. What is this number expressed in scientific notation?

Compute with Scientific Notation

Student Objective: Students will add, subtract, multiply, and divide with scientific notation.

Essential Question: How does writing numbers in different ways help make it easier to compute with very large or very small numbers?

Multiplying with Scientific Notation

Scientists estimate that there are over 3.5×10^6 ants per acre in the Amazon rain forest. If the Amazon rain forest covers approximately 1 billion acres, find the total number of ants. Write in scientific notation.

Step 1: Make sure each number is written in scientific notation.

Step 2: Multiply. Use the Commutative and Associative Properties to rearrange the factors together and the powers together.

Step 3: Make sure the answer is written using scientific notation!

1. $(4.3 \times 10^5)(3.7 \times 10^3)$ 2. $(8.3 \times 10^{-3})(69,500)$

Dividing with Scientific Notation

Evaluate $\frac{7.56 \times 10^8}{3.15 \times 10^3}$. Express the result in scientific notation.

1. Use the Associative property to group factors together and powers together.
2. Divide using Quotient of Powers.

Example: Evaluate and express answer using scientific notation.

$$\frac{8.32 \times 10^7}{1.3 \times 10^5}$$

Adding and Subtracting with Scientific Notation

When adding or subtracting decimals in standard form, you line up the place values.

When adding or subtracting in scientific notation, the place value is represented by the exponent. Each exponent must have the same value in order to add or subtract.

Evaluate each expression. Express the result in scientific notation.

1. $(5.45 \times 10^3) + (3.12 \times 10^4)$

2. $(2.78 \times 10^5) - (46,500)$

3. $(7.3 \times 10^5) + (2.4 \times 10^6)$

4. $(6,450,000,000) - (8.27 \times 10^7)$

Exit Slip: Find the product of 6×10^5 and 2.5×10^7 .

Homework - WS p.63 1-11

1: Search for very large or very small numbers in the sciences, such as biology, astronomy, botany, and oceanography. If the numbers are in standard form, write them in scientific notation. Find eight numbers and record them on a sheet of paper.

2: Exchange with a partner.

Pick two numbers and multiply.

Pick two numbers and divide.

Pick two numbers and add.

Pick two numbers and subtract.

3: Check each other's work.

Homework - Write on back of paper

1. $(9.5 \times 10^{11}) + (6.3 \times 10^9)$
2. $(1.03 \times 10^9) - (4.7 \times 10^7)$
3. $(1.357 \times 10^9) + 590,000$
4. $87,100 - (6.34 \times 10^1)$
5. $(7.3 \times 10^5) + 2,400,000$
6. $(8.64 \times 10^6) + (1.334 \times 10^{10})$
7. $(1.21 \times 10^5) - 9,500$