scientific notation

Scientists developed a shorter method to express very large numbers. This method is called SCIENTIFIC NOTATION. Scientific Notation is based on powers of the base number 10.

The number 123,000,000,000 in scientific notation is written as 1.23×10^{11}. The first number 1.23 is called the coefficient. It must be greater than or equal to 1 and less than 10.

$$1.23 \times 10^{11}$$

Coefficient   Base   Exponent

Converting a number from standard form to scientific notation:

Step 1. Move the decimal until you have a number that is equal to or greater than 1 and less than 10. If your number is really large, you will move the decimal to the left. If the number is really small, you would move the decimal to the right.

Step 2: Find the exponent by counting the number of places you moved the decimal.

Step 3: Drop the zeros to get the coefficient. Multiply it by the base 10 and include the exponent you found in step 2. If you moved the decimal to the right, your exponent will be negative. If you moved the decimal to the left, your exponent would be positive.

example: Write 234,000,000 in scientific notation.

example: Write 0.000000234 in scientific notation.