

Operations with Scientific Notation

Multiplying and Dividing

When MULTIPLYING with Scientific Notation:

Step 1: Multiply the coefficients

Step 2: Keep the base 10

Step 3: Add the exponents (same as with exponent rules)

Example:



$$(6 \times 10^5)(5 \times 10^7) = (6 \times 10^5)(5 \times 10^7)$$

(Note: In the original image, curved arrows point from the 6 and 5 to a multiplication sign 'x' above them, and from the 5 and 7 to a plus sign '+' above them.)

$$= 30 \times 10^{12}$$

**This answer isn't in scientific notation because 30 isn't a number between 1 and 10, so convert it!*

$$30 \times 10^{12} = 3.0 \times 10^{13}$$

When DIVIDING with Scientific Notation:

Step 1: Divide the coefficients

Step 2: Keep the base 10

Step 3: Subtract the exponents (same as with exponent rules)

Example:

$$\frac{(7 \times 10^9)}{(4 \times 10^3)} = (7 \div 4) \times (10^9 \div 10^3)$$
$$= 1.75 \times 10^{(9-3)}$$
$$= 1.75 \times 10^6$$