

Calculate with Scientific Notation

EXP2

Add and Subtract Steps:

- 1) Write the numbers in standard notation
- 2) Line up by place value
- 3) Add or Subtract
- 4) Write the sum or difference in scientific notation

EX: $3.4 \times 10^8 - 9.7 \times 10^6$

$$\begin{array}{r}
 340000000 \\
 - 9700000 \\
 \hline
 330300000 = 3.303 \times 10^8
 \end{array}$$

If the powers of ten are the same, you can just add or subtract the constants and keep the same power of ten.

EX: $5.2 \times 10^{12} + 3.8 \times 10^{12}$

$$\begin{array}{r}
 5.2 \\
 + 3.8 \\
 \hline
 9.0
 \end{array}$$

$$9 \times 10^{12}$$

Multiply and Divide Steps:

- 1) Multiply or divide the constants
- 2) If multiplying, add the exponents on the powers of 10
If dividing, subtract the exponents on the powers of 10
- 3) Write the product or quotient in scientific notation

EX: $2 \times 10^6 \cdot 6 \times 10^8$

$$\begin{array}{l}
 \swarrow \quad \searrow \quad \swarrow \quad \searrow \\
 12 \times 10^{14} \\
 \hline
 1.2 \times 10^{15}
 \end{array}$$

EX:

$$\frac{1.2 \times 10^7}{6 \times 10^{13}} \cdot 2 \times 10^{-6}$$

$$\frac{2 \times 10^{-7}}{1}$$