

Scientific Notation

- A convenient way to express very large & very small numbers
- A way to express a final answer with the appropriate number of significant digits.

$$n \times 10^{\text{?}} \leftarrow \text{any integer } (\dots -3, -2, -1, 0, 1, 2, \dots)$$

$$1 \leq n < 10$$

$$1. \quad \underline{156.90} = 1.5690 \times 10^2$$

$$2. \quad \underline{12,000} = 1.2 \times 10^4$$

$$3. \quad \underline{0.0345} = 3.45 \times 10^{-2}$$

$$4. \quad \underline{0.00890} = 8.90 \times 10^{-3}$$

$$5. \quad \underline{1.23} \times 10^6 = 1230000$$

$$6. \quad 2.5 \times 10^{-3} = 0.0025$$

$$7. \quad 1.54 \times 10^4 = 15400$$

$$8. \quad 5.67 \times 10^{-1} = 0.567$$

Calculations involving scientific notation

Multiplication + Division

$-8 - (-4)$

$\frac{x^5}{x^2} = x^3$

9. $\left(\frac{6.6 \times 10^{-8}}{3.3 \times 10^{-4}}\right) = 2.0 \times 10^{-4}$

Subtract exponents.

~~$\frac{x^5}{x^2}$~~

14. $(2.5 \times 10^{-6}) \times (3.0 \times 10^{-7})$
 $= 7.5 \times 10^{-13}$

Addition + Subtraction

13. $(1.56 \times 10^{-7}) + (2.43 \times 10^{-8})$

these exponents must match

$= 15.6 \times 10^{-8} + 2.43 \times 10^{-8}$

$= 18.03 \times 10^{-8}$

$= 1.803 \times 10^{-7}$

$$\begin{array}{r} 4582 \\ 3.859 \\ 67.7 \\ + 179 \\ \hline \end{array}$$

EXP
EE

6.6	EXP	-8	}	0.0002	+/-
÷				2E-4	
3.3	exp	-4		(-)	