

## Scientific Notation!

- good for really big and really small numbers.
- may be necessary for significant digits

$$\underline{n} \times 10^? \quad 1 \leq n < 10$$

1.  $\underbrace{156,90}_{\text{red}} = 1.5690 \times 10^2$

2.  $12\,000 = 1.2 \times 10^4$

3.  $\underbrace{0.0345}_{\text{red}} = 3.45 \times 10^{-2}$

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

$$5. 1.23 \times 10^6 = 1230000$$

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

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

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

$$6.02 \times 10^{23} = ?$$

## Operations with Scientific Notation

Multiplication + Division:

9.  $\frac{6.6 \times 10^{-8}}{3.3 \times 10^{-4}} = 2.0 \times 10^{-4}$  ← subtract exponents.

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

Addition + Subtraction:

$$\begin{aligned} 12. \quad (2.67 \times 10^{-3}) - (9.5 \times 10^{-4}) &= 26.7 \times 10^{-4} - 9.5 \times 10^{-4} \\ &= 17.2 \times 10^{-4} \\ &= 1.72 \times 10^{-3} \end{aligned}$$

↑  
change to  
 $10^{-4}$

On calculator:

$$9. \quad 6.6 \boxed{\text{EE}}^{-8} \div 3.3 \boxed{\text{EE}}^{-4}$$

0.0002

$$\begin{array}{r} 26.7 \\ 9.5 \\ \hline 17.2 \end{array}$$