

### Scientific Notation

- very large / very small numbers
- expressing your answer with correct s.d.s.

$$(1 \leq n < 10) \times 10^n$$

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

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

$$3. \underline{0.00345} = 3.45 \times 10^{-3}$$

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

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

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

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

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

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

$$12.9 \times 10^4 = 1.29 \times 10^5$$

### Calculations

multiply/divide

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

← subtract exponents

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

add exponents

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

$$x^3 \cdot x^4 = x^7$$

$$13. (1.56 \times 10^{-7}) + (2.43 \times 10^{-8}) = (1.56 \times 10^{-7}) + (0.243 \times 10^{-7}) = 1.803 \times 10^{-7}$$

same exp

$$\begin{array}{r} 1.56 \\ + 0.243 \\ \hline 1.803 \end{array}$$

Calculator:  
EE or EXP

9.  $\frac{6.6 \times 10^{-8}}{3.3 \times 10^{-4}}$

$$\begin{array}{l} 6.6 \bar{E} \bar{E} - 8 \\ \div \\ 3.3 \bar{E} \bar{E} - 4 \\ \text{ENTER} \end{array} \Rightarrow \begin{array}{l} \text{display} \\ 6.6 \bar{E} - 8 \\ 6.6^{-08} \\ 6.6^{-08} \end{array}$$

$$\begin{array}{l} 2.0 \bar{E} - 4 \\ -04 \\ 2 \\ 0.0002 \\ 2^{-04} \end{array} \left. \begin{array}{l} \leftarrow \text{display} \\ \left. \vphantom{\begin{array}{l} 2.0 \bar{E} - 4 \\ -04 \\ 2 \\ 0.0002 \\ 2^{-04} \end{array}} \right\} \end{array} \right\}$$