

Basic Skill

Scientific Notation

- a convenient way to express very large numbers or very small numbers
- to express a result of a calculation using the correct number of significant digits

$$\underline{n} \times 10^{?}$$

← -3, 0, +5
Integer

$$0 < n < 10$$

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

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

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

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

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

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

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

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

Calculations involving Scientific Notation

Multiplying + Dividing

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

$-8 - (-4)$ ← Subtracted exponents.

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

$-6 + (-7)$
↑ add exponents

Adding and Subtracting

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

need to have the same place value

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

$(1.56 \times 10^{-7}) + (0.243 \times 10^{-7})$
 1.803×10^{-7}

$$\begin{array}{r} 1025.321 \\ 2.5 \\ + 135 \\ \hline 21.8 \end{array}$$

↑ line up place values

On the calculator: look for EE or EXP

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

$$6.6 \text{ EE } -8 / 3.3 \text{ EE } -4$$

-08
6.6
6.6 $\left[\frac{1 \times 10^{-8}}{-} \right]$