

Scientific Notation

Exact

exact #'s do not have precision... exact

Measured

measured #'s contain:

- 1) quantity measured
- 2) the precision of measurement

↑ Types of Numbers ↑

Q: What's the difference between

150 and 135



A: You keeping your licence!

Scientific notation is used to show the quantity measured and the precision used.

$$150 \Rightarrow 1.5 \times 10^2$$

2 significant digits

$$135 \Rightarrow 1.35 \times 10^2$$

3 significant digits

The Rules:

Addition and Subtraction:

Number of decimal places in the answer equals the minimum number of decimal places:

$$\underset{1}{42.2} + \underset{3}{1.994} = \underset{1}{44.2}$$

Multiplication, exponentials, trigonometry

Number of significant digits in the answer equals the minimum number of significant digits

$$\underset{3}{(4.23)}(\underset{3}{0.994}) = \underset{3}{4.20}$$

Examples: signifies that the "0" is significant

$$6430. = 6.430 \times 10^3$$

$$0.0043 = 4.3 \times 10^{-3}$$

$$0.0700 = 7.00 \times 10^{-2}$$

$$2000 = 2 \times 10^3$$

$$x = 1.000 + (3.1415)(0.001)$$

$$\begin{array}{r} 0.0031415 \\ 0.003 \\ \hline 1.003 \end{array}$$

multiplication step is minimum sig. fig.

addition step is least number of decimal places