**RULES FOR SIGNIFICANT FIGURES**

1. **All non-zero numbers ARE significant.** The number 33.2 has THREE significant figures because all of the digits present are non-zero.

2. **Zeros between two non-zero digits ARE significant.** 2051 has FOUR significant figures. The zero is between a 2 and a 5.

3. **Leading zeros are NOT significant.** The number 0.54 has only TWO significant figures. 0.0032 also has TWO significant figures. All of the zeros are leading.

4. **Trailing zeros to the right of the decimal ARE significant.** There are FOUR significant figures in 92.00.

5. **Trailing zeros in a whole number with the decimal shown ARE significant.** Placing a decimal at the end of a number is usually not done. By convention, however, this decimal indicates a significant zero. For example, "540." indicates that the trailing zero IS significant; there are THREE significant figures in this value.

6. **Trailing zeros in a whole number with no decimal shown are NOT significant.** Writing just "540" indicates that the zero is NOT significant, and there are only TWO significant figures in this value. Also, 470000 has two significant figures.

**Example:**

|  |  |
| --- | --- |
| Number | # Significant Figures  |
| 48.923 | 5 |
| 3.967 | 4 |
| 900.06 | 5 |
| 0.0004 (= 4 E-4) | 1 |
| 8.1000 | 5 |
| 501.040 | 6 |
| 3000000 (= 3 E+6)  | 1 |
| 10.0 (= 1.00 E+1) | 3 |

**MATHEMATICAL OPERATIONS**

**MULTIPLICATION AND DIVISION:**

When multiplying or dividing numbers, count the **NUMBER OF SIGNIFICANT FIGURES. The answer cannot CONTAIN MORE SIGNIFICANT FIGURES THAN THE NUMBER BEING MULTIPLIED OR DIVIDED with the LEAST NUMBER OF SIGNIFICANT FIGURES.**

**Example:**

|  |  |
| --- | --- |
| 23.123123 | (8 significant figures) |
| x 1.3344 | (5 significant figures)  |
| 30.855495 | (on calculator) |
| 30.855 | (rounded to 5 significant figures) |

## ADDITION AND SUBTRACTION:

When adding or subtracting numbers, count the **NUMBER OF DECIMAL PLACES** to determine the number of significant figures. The answer cannot **CONTAIN MORE PLACES AFTER THE DECIMAL POINT THAN THE SMALLEST NUMBER OF DECIMAL PLACES** in the numbers being added or subtracted.

### Example:

|  |  |
| --- | --- |
| 23.112233 | (6 places after the decimal point) |
| 1.3324 | (4 places after the decimal point) |
| + 0.25  | (2 places after the decimal point) |
| 24.694633 | (on calculator) |
| 24.69 | (rounded to 2 places in the answer) |