

SIGNIFICANT FIGURES

Name _____

A measurement can only be as accurate and precise as the instrument that produced it. A scientist must be able to express the accuracy of a number, not just its numerical value. We can determine the accuracy of a number by the number of significant figures it contains.

- 1) All digits 1-9 inclusive are significant.
Example: 129 has 3 significant figures.
- 2) Zeros between significant digits are always significant.
Example: 5,007 has 4 significant figures.
- 3) Trailing zeros in a number are significant only if the number contains a decimal point.
Example: 100.0 has 4 significant figures.
100 has 1 significant figure.
- 4) Zeros in the beginning of a number whose only function is to place the decimal point are not significant.
Example: 0.0025 has 2 significant figures.
- 5) Zeros following a decimal significant figure are significant.
Example: 0.000470 has 3 significant figures.
0.47000 has 5 significant figures.

Determine the number of significant figures in the following numbers.

- | | |
|----------------|-------------------|
| 1. 0.02 _____ | 6. 5,000. _____ |
| 2. 0.020 _____ | 7. 6,051.00 _____ |
| 3. 501 _____ | 8. 0.0005 _____ |
| 4. 501.0 _____ | 9. 0.1020 _____ |
| 5. 5,000 _____ | 10. 10,001 _____ |

Determine the location of the last significant place value by placing a bar over the digit. (Example: 1.70 $\bar{0}$)

- | | |
|------------------------------|--------------------------------|
| 1. 8040 _____ | 6. 90,100 _____ |
| 2. 0.0300 _____ | 7. 4.7×10^{-8} _____ |
| 3. 699.5 _____ | 8. 10,800,000. _____ |
| 4. 2.000×10^2 _____ | 9. 3.01×10^{21} _____ |
| 5. 0.90100 _____ | 10. 0.000410 _____ |