

# Significant Figures

Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_



When performing calculations (and experiments) in chemistry and physics, you must follow significant figure rules. They give other scientists information about the equipment that you are using.

Note: You will be expected to follow these rules on all future calculations. The sooner you memorize them, the easier things will be.

## Rules

1. All numbers that are not zero are significant

Example: 53 g has \_\_\_\_\_ significant figures

2. Zeroes at the beginning are never significant.

Example: .0023m has \_\_\_\_\_ significant figures

0.156m has \_\_\_\_\_ significant figures.

0.00113m has \_\_\_\_\_ significant figures.

3. Zeroes between nonzero numbers always significant.

Example: 407ml has \_\_\_\_\_ significant figures

30.11g has \_\_\_\_\_ significant figures

10003 has \_\_\_\_\_ significant figures

4. Zeroes at the end of a number are significant if a decimal is shown.

Example: .650km has \_\_\_\_\_ significant figure

0.03100 km has \_\_\_\_\_ significant figures

4500cm has \_\_\_\_\_ significant figures

4500. cm has \_\_\_\_\_ significant figures

5. Counted or exact numbers (ex. 12 eggs in a dozen, 13 girls in the class) have an unlimited amount of significant figures.

6. For multiplication/division, the answer can have the same number of significant figures as the value with the fewest number of significant figures (COUNT DOWN)

Ex.  $(.79 \text{ cm})(31.3 \text{ cm}) = 24.750 \text{ cm}^2 = 25\text{cm}^2$

7. For addition/subtraction, the answer can have the number of places after the decimal as the value with the fewest number of places after the decimal (CHOP off the extra the decimal places)

Ex.  $104.622\text{m} + .1\text{m} = 104.722\text{m} = 104.7\text{m}$



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**1. Tell how many significant figures**

a.) 0.4004 mL

b.) 6000 g

c.) 1.00030 km

d.) 0.0006730 g

e.) 50,000.0  $\mu\text{L}$

f.) 371 mol

g.)  $4.00 \times 10^2 \text{ mm}$

h.) 21 mL

**2.) Addition/Subtraction. Calculate and report the answer in correct significant figures.**

a.) 
$$\begin{array}{r} .78 \text{ g} \\ + 0.3329 \text{ g} \\ \hline \end{array}$$

b.)  $10.2 \text{ cm} - 7.11 \text{ cm} =$

c.) 
$$\begin{array}{r} 8.205\text{mm} \\ - .13 \text{ mm} \\ \hline \end{array}$$

d.)  $1.8 \text{ ml} + 99.532 \text{ ml} =$

e.) 
$$\begin{array}{r} 0.947 \text{ mg} \\ + .32 \text{ mg} \\ \hline \end{array}$$

f.)  $133.44 \text{ L} - 0.8102 \text{ L} =$

**3.) Multiplication/Division. Calculate and report your answer in correct number of significant figures.**

a.)  $(3.8102 \text{ m})(3.44 \text{ m}) =$

b.)  $\frac{0.9420 \text{ g}}{13.16722 \text{ mL}} =$

c.)  $(2.24 \text{ cm})(7.943 \text{ cm}) =$

d.)  $246.8 \text{ cm}^3 / 2.46 \text{ cm} =$

e.)  $612 \text{ g} / 7.15 \text{ mL} =$

f.)  $.28 \text{ m}^3 / 11.11 \text{ m} =$