



# Chem 1010/1800 Tip Sheet

## Significant Figures

Scientists use significant figures (s.f.) to track the precision of their measurements. When doing calculations, we can never end up with a result that is more precise than what we started with. This means we have to follow rules to ensure we use the correct number of significant figures.

	How to do it	Examples
Counting Significant Figures	1. Any non-zero digits are significant	1. <u>125</u> mL ... 3 s.f.
	2. Any zero between two non-zero digits is significant	2. <u>305</u> g ... 3 s.f.
	3. Leading zeroes are not significant	3. 0. <u>013</u> L ... 2 s.f.
	4. Zeroes that appear after a decimal are significant, unless they are leading	4. <u>20.00</u> atm ... 4 s.f.
	5. Exact numbers have an infinite number of significant figures	5. 9 candies ... exact number (infinite s.f.)
Addition & Subtraction	<ul style="list-style-type: none"><li>Count the number of <b>decimals</b> in every term being added or subtracted. Determine which term has the fewest number of decimals</li><li>Compute the answer, then round to the fewest number of decimals from the original terms</li></ul>	<ul style="list-style-type: none"><li><math>1.\underline{21} + 0.\underline{5} = 1.\underline{7}</math></li><li><math>781.\underline{6} - 224 = 558</math></li><li><math>0.\underline{004432} - 0.\underline{1938} + 1.\underline{00399} = 0.\underline{8146}</math></li></ul>
	Multiplication & Division	<ul style="list-style-type: none"><li>Count the number of <b>significant figures</b> in every term being multiplied or divided. Determine which term has the fewest number of s.f.</li><li>Compute the answer, then round to the fewest number of s.f. from the original terms</li></ul>
Logarithms		<ul style="list-style-type: none"><li>Count the number of <b>significant figures</b> inside the logarithm</li><li>Compute the answer, then round the number of decimal places to the number of sig figs from inside the logarithm</li></ul>



## Exponents

- Count the number of **decimal places** in the exponent
  - Compute the answer, then round the number of sig figs to the number of decimals from the exponent
- $2^{1.40} = \underline{2.6}$
  - $10^{0.9795} = \underline{9.539}$
  - $0.5^{7.1} = 0.00\underline{5}$

## Student Learning Centre

Call: 905.721.8668 ext. 6578

Email: [studentlearning@ontariotechu.ca](mailto:studentlearning@ontariotechu.ca) Downtown Oshawa Location: Charles Hall

Website: [ontariotechu.ca/studentlearning](http://ontariotechu.ca/studentlearning) North Oshawa Location: Shawenjigewining Hall

