

# Rules to determine number of significant figures (10)

1. Non zeros are always significant

457                      3 sig'figs  
2.514                    4 " "

2. Captive 0's are always significant

1005                    4 sig'figs  
1.0031                 5 " "

3. Leading 0's never significant

0.003                    1 sig. fig

4. Terminal 0's only significant if after a decimal point

not sig' ← 0.0200  
          not terminal

3 sig figs.

5. Terminal 0's not following decimal point - ambiguous  
100 can be 1, 2 or 3.

To remove ambiguity express in exponential notation

(11)

$1.00 \times 10^2$       3 sig figs

$1.0 \times 10^2$       2 " "

$1 \times 10^2$       1 " "

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### Calculations & sig'fig's.

if X or ÷      Use all figures but quote answer to accuracy of the least significant number using rounding off method.

eg.  $6.221 \text{ cm} \times 5.2 \text{ cm} = 32.3492 \text{ cm}^2$   
but least significant number is 5.2  
2 sig figs.

look at 3rd sig'fig and round off

$32.3 \rightarrow \underline{32 \text{ cm}^2}$  (2 sig'figs)

For  $\oplus$  or  $\ominus$  Use all figures but quote answer to accuracy of the number with least number of decimal places, using rounding off.

eg.  $20.4 + 1.322 + 83 = 104.722$

number with least decimal places  
is 83 (0 decimal places)

So look at 1st dec. pl' and round off.

$$104.7 \rightarrow \underline{105} \quad (0 \text{ dec'pl})$$

In the case of whole numbers  
or definitions we  
consider the numbers as exact  
no need to consider sig figs.

eg. 3 apples or  $2.54 \text{ cm} = 1 \text{ in}$