For addition and subtractionm, round FINAL ANSWERS to the same number of decimal places as the measurement with the fewest decimal places. This will give an answer that indicates the proper amount of uncertainty.

For multiplication and division, round FINAL ANSWERS to the same number of SIGNIFICANT FIGURES as the measurement with the fewest SIGNIFICANT FIGURES!

4 3 3

$15.62 \times 0.0667 \times 35.0 = 36.46489$

36.5

How should we report this answer?

3 2 5

$25.4 \times 0.00023 \times 15.201 = 0.088804242$

these zeros are not significant!

0.089

How should we report this answer?

A few more math with significant figures examples:

Round to 2 s.f.

5 (2) 4

$15047 \times 11 \times 0.9876 = 163464.5892$

16

160000

$147.3 + 2432 + 0.97 + 111.6 = 2691.87$

2692

round so that there is only one uncertain digit!

Exact Numbers

- Some numbers do not have any uncertainty. In other words, they weren't measured!

- numbers from counting

- numbers from definitions

ex: 12 in = 1 ft

10^{-2} m = cm

- treat exact numbers as if they have infinite sig figs

Example

You'll need to round the answer to the right number of significant figures!

Convert 4.45 m to in, assuming that 2.54 cm = 1 in

$2.54\,cm = 1\,in$ $\qquad 1\,cm = 10^{-2}\,m$

$$4.45\,m \times \frac{1\,cm}{10^{-2}\,m} \times \frac{1\,in}{2.54\,cm} = 175.196850$$

3 s.f. $\qquad \infty$ s.f. $\qquad \infty$ s.f.

round to 3 s.f.

$$\boxed{175\ in}$$