

Divisions in Measuring Tools

(1) [x1]

length: 1m
volume: 1L

(0.5) [x2]

length: 0.5m
volume: 0.5L

(0.2) [x5]

length: 0.2m
volume: 0.2L

(0.1) [x10]

length: 0.1m
volume: 0.1L

Graduated Tools

Measuring tools with graduations (equal divisions) along length.

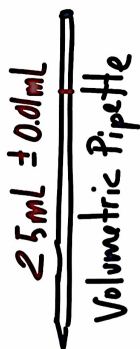
More graduations =
More Accuracy

(1) = x1 (2) = x2 (10) = x10
(Accur. Increase)

Divisions in Measuring Tools



Volumetric Flask



Volumetric Pipette

Flask

500.0mL
(@ 25°C)

Pipette

25.00mL
(@ 25.0°C)

Fixed Tools

Measuring Tools with one single (fixed) measurement.

Fixed tools are very accurate due to being calibrated to one single measurement at a certain temperature (°C).

Add./Subtract

Round to least # places
after decimal

$$\begin{aligned}
 < \quad 32.1\text{cm} + 18.62\text{cm} \\
 &= 50.72\text{cm} \text{ (unround.)} \\
 &= 50.7\text{cm} \text{ (rounded)}
 \end{aligned}$$

Mult./Divide

Round to 2 places past decimal

$$\begin{aligned}
 &32.1\text{cm} \times 18.62\text{cm} > \\
 &= 597.702\text{cm}^2 \text{ (unround.)} \\
 &= \underline{597.70\text{cm}^2} \text{ (rounded)}
 \end{aligned}$$