Calculations Involving Significant Digits

Your final answer cannot be any more precise than the measurements used to determine it.

Addition | Subtraction

135.123 m (LC = 0.01 m)

3.1 m (LC = 1 m) ← least precise place value is tenths.

+ 42.06 m (LC = 0.1 m)

180.283 m

there are 3 uncertain digits, but you can only use one in your final answer

180.3 m

When adding and subtracting, round your final answer to the least precise place value.

Multiplication | Division

231.5 m (LC = 1 m) (4 sd)

x 3.1 m (LC = 1 m) (2 sd)

2315

6945

7107.65 m^2

↑ can only have one uncertain digit

7.2×10^2 m^2 ← better answer (2 sd)

(720 m^2)

When multiplying and dividing you round your final answer to the least number of significant digits used in the calculation.

Examples

① $32.1\,g + 1.0059\,g + 2.39\,g = 35.4959\,g$

$35.5\,g$

② $4200\,m + 15.5\,m + 179\,m = 4394.5\,m$

$4.4 \times 10^3\,m$

ADDING + SUBTRACTING → least precise place value.

③ 3sd 2sd

$32.7\,km \div 1.2\,h = 27.25\,\frac{km}{h}$

$27\,km/h$

④ 4sd 4sd 3sd

$4.219\,mm \times 105.2\,mm \times 2.35\,mm =$

3sd $1043.02118\,mm^3$

$1.04 \times 10^3\,mm^3$

MULTIPLYING + DIVIDING → Least # of sds